MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Chronic Disease Surveillance Program
Bureau of Health Statistics, Research and Evaluation

A Profile of Health Among Massachusetts Adults, 1999

Results from the Behavioral Risk Factor Surveillance System

Jane Swift ~ Governor
William D. O'Leary ~ Secretary of Health and Human Services
Howard K. Koh, MD, MPH ~ Commissioner, Department of Public Health
Deborah Klein Walker ~ Associate Commissioner for Programs and Prevention

Bureau of Health Statistics, Research and Evaluation
Daniel J. Friedman ~ Assistant Commissioner
Bruce B. Cohen ~ Director, Research and Epidemiology
Daniel R. Brooks ~ Director, Chronic Disease Surveillance Program

Authors of this report
Daniel Brooks, MPH, Director
Karen Clements, MPH, Research Analyst
Phyllis Brawarsky, MPH, Research Analyst
Lorelei Mucci, MPH, Research Analyst
Brian Bradbury, MPH, Research Analyst
Jason Yeaw, BS, Research Analyst

TABLE OF CONTENTS

EXECUTIVE SUMMARY

A Profile of Health Among Massachusetts Adults, 1999 presents the results of the 1999 Massachusetts Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS collects information from a sample of Massachusetts residents on a wide variety of health issues and is an important source of information about the prevalence of risk factors that contribute to premature death, illness and disability among Massachusetts residents. The information obtained in this survey assists in identifying the need for health interventions, monitoring the effectiveness of existing programs, and developing health policy and legislation. In 1999, 7,287 interviews were conducted among Massachusetts adults age 18 and older. Presented below are some of the highlights from the 1999 Massachusetts BRFSS.

OVERALL HEALTH MEASURES

Overall Health Status

Twelve percent of Massachusetts adults described their health as fair or poor. Older adults, adults with lower levels of education and income, and adults unable to work were more likely to report fair or poor health. Compared to other states, Massachusetts had the 9th lowest percentage of adults with fair or poor health.

Eight percent of adults reported experiencing poor mental health on 15 or more days in the past month. Hispanics, adults with lower levels of education and income, and those unable to work were more likely to report poor mental health.

Five percent of adults were limited in their usual activities on 15 or more days in the previous month because of poor mental or physical health. Older adults, adults with lower levels of education and income, and those unable to work were more likely to report activity limitations.

Quality of Life

Seven percent of Massachusetts adults reported feeling sad or depressed for 15 or more days in the previous month. Adults with high levels of education and income were less likely to feel depressed, while adults unable to work were more likely to report feeling depressed.

Eight percent of adults reported that pain interfered with their activities for at least one-half of the previous month. The percentage of adults who experienced pain 15 or more days increased with increasing age, and decreased with increasing levels of education and income. Adults unable to work were particularly likely to report frequent pain.

Almost three-fourths of Massachusetts adults reported feeling healthy and full of energy 15 or more days in the previous month. Adults 75 years of age and older, adults with the lowest levels of education and income, and those unable to work were less likely to feel healthy and energetic on this many days.

ACCESS AND UTILIZATION

Health Access and Utilization

Five percent of Massachusetts adults were currently without health insurance. Men, younger adults, and unemployed adults were more likely to have no health insurance. A higher percentage of adults of races other than white, non-Hispanic had no health insurance. The percentage of adults with no insurance decreased with increasing education and income. Compared to other states, Massachusetts had the 2nd lowest percentage of uninsured adults.

Almost eight percent of adults did not see a doctor in the past year because of cost. Younger adults, those unemployed or unable to work, and those with less education and lower incomes were more likely to be unable to see a doctor because of cost.

Dental Health

More than three-quarters of Massachusetts adults visited the dentist in the previous year. Men, Blacks, Hispanics, and older adults were less likely to have gone to the dentist in the past year. Income and education were inversely related to visiting the dentist.

Almost eighteen percent of adults reported missing 6 or more teeth due to decayor gum disease. Women were more likely to have tooth loss from decay than men. The percentage of adults with substantial tooth loss increased with increasing age and decreasing levels of income and education. Compared to other states in 1999, Massachusetts had the 3d highest percentage of adults who visited the dentist in the past year and the 16th lowest percentage of adults with 6 or more missing teeth from decay.

HEALTH RISKS AND PREVENTIVE BEHAVIORS

Tobacco Use

Twenty percent of Massachusetts adults reported currently smoking cigarettes. Current smoking was higher among adults 18-24 years of age. Current smoking was strongly related to socioeconomic characteristics. Adults with lower levels of income or education and adults who were unemployed or unable to work were much more likely to be current smokers. Compared to other states, Massachusetts had the 7th lowest percentage of current smokers. Three percent of adults reported smoking 21 cigarettes a day or more. Men, Whites, individuals with the lowest levels of education and income, and adults unable to work were more likely to be heavy smokers.

Sixty-two percent of current smokers reported quitting for 1 day or longer in the past year. Students and Hispanics were more likely to have quit for 1 day or longer.

Environmental Tobacco Smoke

Sixty percent of Massachusetts adults supported making restaurants smoke-free. Support was higher among adults ages 45 to 54, Hispanic adults, and adults with a college education. Support for a ban on smoking in restaurants increased with increasing household income. Over sixty percent of adults reported living in a home where smoking is not permitted. Hispanic adults, adults with a college education, and adults with the highest levels of income were more likely to live in a home where smoking is not permitted.

Alcohol Use

Eighteen percent of Massachusetts adults reported drinking 5 or more drinks on any one occasion (binge drinking) during the past month. Men and younger adults were more likely to report binge drinking, while adults with the lowest levels of education were less likely to binge drink. The percdentage of adults who binge drink has decreased steadily since 1986. Compared to Massachusetts, 39 states had fewer adults who engaged in binge drinking in the past month.

Four percent of Massachusetts adults reported drinking 60 or more drinks during the past month (heavy drinking). Men and adults 18 to 24 years of age were much more likely to report heavy drinking. Compared to Massachusetts, 34 states had fewer adults who engaged in heavy drinking in the past month.

Three percent of adults reported driving after drinking too much in the past month. Men were more likely to report driving after drinking too much than women. Reported driving after drinking

decreased with increasing age. Adults with the lowest levels of education were least likely to report driving after drinking in the past

month.Compared to Massachusetts, 34 states had fewer adults who drove after having too much to drink. The percentage of adults who drove after having too much to drink has decreased since 1986.

Weight Control

Twenty-seven percent of Massachusetts adults were overweight based on body mass index (BMI) standards adopted by Healthy People 2000. Men, Black adults, adults unable to work, and those with the with the lowest levels of education were more likely to be overweight. The percentage of overweight adults increased until the age of 75, then decreased. There has been an increase in the percentage of overweight adults since 1986. Compared to other states, Massachusetts had the 2nd lowest percentage of overweight adults.

According to BMI standards adopted by Healthy People 2010 standards, almost one-half of Massachusetts adults were classified as overweight. The socio-demographic characteristics of adults overweight according to the newer standards were similar to the characteristics of those overweight according to the older standards. Nearly 14% of adults were very overweight according to HP2010 standards.

Hypertension Awareness

96% of Massachusetts adults reported having their blood pressure checked in the past two years. Women were more likely to have ever had their blood pressure checked than men. Twenty-one percent of Massachusetts adults have ever been told by a doctor that they have high blood pressure. Older adults and adults with lower levels of education and income were more likely to report high blood pressure. The percentage of Asians who reported high blood pressure was particularly low. Compared to other states, Massachusetts had the 6th lowest percentage of adults with high blood pressure.

Cholesterol Awareness

Over three-quarters of Massachusetts adults reported having their cholesterol checked within the past five years. Women, older adults and adults with higher levels of income and education were more likely to have had their cholesterol checked. The percentage of adults who had their cholesterol checked in the past two years has increased significantly since 1987. Of those adults who had their cholesterol checked, over 28% were told that their cholesterol level was high. The percentage of adults reporting high cholesterol increased with increasing age until age 75, then decreased. Adults with lower levels of education and income were more likely to report high cholesterol. Compared to other states, Massachusetts had the 2nd highest percentage of adults who have had their cholesterol checked with 5 years, and the 14th lowest percentage of adults with high cholesterol.

Sunburn

Almost one-third of Massachusetts adults reported experiencing one or more sunburns in the past 12 months. The percentage of adults who reported one or more sunburn was inversely related to age, and positively related to education and income. A high percentage of students reported one or more sunburns in the past year. Nearly 19% of Massachusetts residents experienced two or more sunburns in the past year.

Flu and Pneumonia Vaccinations

Over two-thirds of Massachusetts adults age 65 and older received a flu vaccination in the past year. White adults and adults with higher levels of education were more likely to have been vaccinated. Since 1993, the percentage of elder adults receiving a flu vaccine in the past year increased substantially. Almost 40% of adults age 50 to 64 received a flu vaccination in the past year. Fifty-six percent of Massachusetts adults age 65 and older ever received a pneumonia vaccine. Pneumonia vaccination in this age group increased

with increasing levels of education. Since 1993, the percentage of elder Massachusetts residents receiving a pneumonia vaccination has increased substantially. Compared to other states, Massachusetts had the 23rd highest percentage of elder adults who received a flu vaccine in the past year and the 17th highest percentage of elders who ever received a pneumonia vaccination.

CANCER SCREENING

Colorectal Cancer Screening

Over 40% of Massachusetts adults age 50 and older reported ever having a blood stool test. The percentage of adults who ever had a blood stool test increased with increasing levels of education. Over one-third of adults age 50 and older reported having a blood stool test in the past two years. Women and adults age 60 and older were more likely to have had a recent blood stool test. In 1999, Massachusetts had the 9th highest percentage of residents who received a blood stool test in the past two years. Over 35% of adults age 50 and older ever had a sigmoidoscopy or colonoscopy. Receipt of sigmoidoscopy/colonoscopy was lowest in adults under age 60, and higher with increasing levels of education. Since 1993, the overall percentage of Massachusetts residents who had a sigmoidoscopy or colonoscopy in the past 5 years has steadily increased.

Breast Cancer Screening

Ninety-one percent of women age 40 and older ever had a mammogram. Hispanic women and women with lower levels of education and income were less likely to have had a mammogram. Since 1987, the percentage of women age 40 and older who ever received a mammogram has increased. Compared to other states, Massachusetts had the 6th highest percentage of women age 40 and over who ever had a mammogram.

Eighty-three percent of women age 50 and older had a mammogram in the past two years. Recent mammography screening decreased with increasing age and increased with increasing income and education. Since 1992, the percentage of women age 50 and older who received a mammogram in the past two years has increased substantially. Compared to other states, Massachusetts had the 9th highest percentage of women 50 years of age and older who had a mammogram in the past two years.

Eighty-two percent of women age 18 and older received a clinical breast exam (CBE) in the past two years. Women younger than age 30 or older than age 80, Hispanic and Asian women, and women with less education and income were less likely to have had a CBE in the past two years. Since 1992, the percentage of women who received a CBE in the past two years has not changed.

Cervical Cancer Screening

Ninety-three percent of Massachusetts women age 18 and older ever had a Pap smear. Women age 18 - 24 or 75 and older, Hispanic and Asian women were less likely to have ever had a Pap smear. Screening increased with increasing levels of education and income. Since 1991, the percentage of women age 18 and older who have ever had a Pap smear has not changed. Eighty-seven percent of women without a hysterectomy had a Pap smear in the past 3 years. Socio-demographic characteristics of women who had a recent Pap smear are similar to those of women who ever had a pap smear. Since 1992, there has been a slight increase in the percentage of women without a hysterectomy screened for cervical cancer within 3 years. Compared to other states, Massachusetts had the 41st highest percentage of women ever screened and the 17th highest percentage of women screened within 3 years.

Prostate Cancer Screening

Over 70% of men age 50 and older reported ever having a prostate specific antigen (PSA) blood test to screen for prostate cancer. Almost 60% of men age 50 and over had a PSA test in the past year. Recent PSA testing was highest among adults age 60-69. The percentage of men who had a recent PSA test increased with increasing levels of education and income.

Fifty-seven percent of men age 50 and over had a digital rectal exam (DRE) in the past year to

screen for prostate cancer. Recent DRE was lowest among men age 50-59, age 80 and over, and among Hispanics.

HEALTH CONDITIONS

Diabetes

Five percent of Massachusetts adults reported having diabetes. Men were more likely to have diabetes than women. The percentage of adults with diabetes was positively related to age, but was inversely related to education and income. A high percentage of residents who were unable to work had diabetes. Since 1989, the proportion of Massachusetts residents with diabetes has not significantly changed. Compared to other states, Massachusetts had the 13th lowest percentage of adults with diabetes. Over half of adults reported having heard, seen, or read information on the importance of controlling diabetes. Women, White adults, and adults with high levels of income and education were more likely to have heard, seen, or read information on the importance of controlling diabetes.

Disability and Activity Limitation

Nineteen percent of Massachusetts residents reported having a disability or limitation for at least one year. The percentage of adults with a disability or limitation was positively related to age and inversely related to education and income. A low percentage of Asian adults reported a disability. Adults who were unemployed, unable to work or retired were much more likely to have had a limitation or disability. Five percent of Massachusetts adults had a limitation for which they required help with daily activities. The socio-demographic characteristics of adults who needed help with daily activities was similar to that of all adults with disability or limitation.

WOMEN'S HEALTH

Sexual Assault and Intimate Partner Abuse

Nineteen percent of Massachusetts women age 18 to 59 reported ever being sexually assaulted. Asian women, and women with the lowest levels of education were less likely to report ever being sexually assaulted. Almost one percent of women age 18 to 59 reported being sexually assaulted in the past year. Women age 18 to 24 were more likely to report recent sexual assault. Five percent of women aged 18 to 59 reported intimate partner abuse in the past year. Black women, women with lower levels of education and income, and women unable to work were much more likely to have reported intimate partner abuse in the past year.

Folic Acid

Nearly 80% of Massachusetts women age 18 to 44 reported hearing of folic acid. The percentage of women who heard of folic acid increased with increasing age, education and income. Hispanic women were less likely to have heard of folic acid. Forty-one percent of Massachusetts women 18 to 44 reported consuming folic acid daily. As with folic acid awareness, the daily use of folic acid increased with increasing age, education, and income. Hispanic women were less likely to consume folic acid daily.

CHILDREN'S HEALTH

Health Insurance

Two percent of Massachusetts children had no health insurance, and two percent were unable to see a doctor in the past year because of cost. The percentage of uninsured children and children who were unable to see a doctor because of cost decreased with increasing household income. Over 95% of Massachusetts children received appropriate preventive health care in the past year. The percentage of children receiving appropriate medical care did not vary according to the child's age or household income.

Oral Health

Almost ninety percent of children age 6 to 17 visited a dentist in the past year. Dental check-ups among

children increased with increasing household income. Five percent of Massachusetts children were unable to see a dentist in the past year because of cost. Children age 6 and older were more likely to be unable to see the dentist. The percentage of children who were unable to see a dentist because of cost decreased with increasing household income.

Chicken Pox

Two percent of Massachusetts children had chicken pox in the last 12 months. Chicken pox in the previous year was highest among children 1 to 9 years of age. The percentage of children with recent chicken pox did not vary significantly by household income. The incidence of chicken pox in Massachusetts children has decreased steadily from the beginning of 1998 through the end of 1999.

Disability

Two percent of Massachusetts children had a disability or were limited in any activity because of an impairment or health problem. The prevalence of disability increased with increasing age, and decreased with increasing household income.

ADDITIONAL TOPICS

HIV/AIDS Risk and Testing

Eight percent of Massachusetts adults age 18 to 64 characterized their risk of contracting HIV as medium to high. Men, adults age 18 to 24, Hispanics, and adults with the lowest levels of income and education were more likely to view themselves at high or medium risk. A large percentage of adults unable to work considered themselves at increased risk of HIV. Compared to other Massachusetts, 4 other states had more adults who reported high or medium risk of contracting HIV.

Forty-six percent of adults age 18 to 64 have ever been tested for HIV. Men, adults age 25 to 34, Blacks and Hispanics were more likely to have ever been tested for HIV. Sixteen percent report being tested in the past year. Recent testing was highest among younger adults, Blacks and Hispanics. Recent testing increased with decreasing income. The percentage of Massachusetts adults ever tested for HIV has increased substantially since 1993.

Gambling

Almost one-half of adults reported gambling in the past year. Men were more likely to gamble than women. Adults age 75 and over, Asians, and Hispanics were the least likely to gamble. The percentage of adults who gambled did not vary substantially according to according to education or household income. White and Black adults were more likely to gamble than adults of other races. Of those who gambled in the past year, three percent reported that gambling created problems with family, work, or personal life. The percentage of gamblers reporting problems did not vary according to demographic characteristics.

Elder Health

Almost one-third of adults age 65 years and older reported a functional limitation in at least one activity of daily living. The percentage of elders who reported a limitation increased with increasing age, and decreased with increasing levels of education and income. Almost one in ten elders reported wearing a hearing aid every day. Hearing aid use increased with increasing age. Black elders and elders with lower levels of income were more likely to wear a hearing aid. Eight percent reported being blind in one or both eyes. Vision loss increased with increasing age. Elders with the lowest levels of education were more likely to report being blind in one or both eyes.

SUMMARY OF 1999 BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM RESULTS

	1999 MASSACHUSETTS (%)	*1999 NATIONAL MEDIAN (%)*	*1999 NATIONAL RANKING**	*HP 2010 OBJECTIVE (%)*
OVERALL HEALTH MEASURES				
FAIR/POOR HEALTH	11.5	13.1	9TH	
15+ DAYS POOR MENTAL HEALTH	8.0			
15+ DAYS ACTIVITIES LIMITED	5.4			
15+ DAYS DEPRESSED	6.5			
15+ DAYS PAIN	7.5			
15+ DAYS FULL OF ENERGY	72.2			
ACCESS AND UTILIZATION				
NO HEALTH INSURANCE	5.4			
DID NOT SEE DOCTOR DUE TO COST	7.5	9.6	10TH	
DENTAL VISIT IN PAST YEAR	75.6	68.1	3RD	
6+ TEETH MISSING DUE TO DECAY	17.6	19.9	16TH	
RISK FACTORS / PREVENTIVE BEHAVIORS				
CURRENT SMOKER	20.2	22.7	7TH	12
HEAVY SMOKER	3.1			
QUIT SMOKING FOR 1 DAY OR LONGER IN PAST YEAR AMONG CURRENT SMOKERS	61.9			
SUPPORT BAN ON SMOKING IN RESTAURANTS	59.8			
LIVE IN A HOUSEHOLD WHERE SMOKING I NOT PERMITTED	61.6			
BINGE DRINKER	17.5	14.9	40TH	
HEAVY DRINKER	4.4	3.6	35TH	
DWI	3.1	2.4	35TH	
OVERWEIGHT (HP 2000)	26.7	33.7	2ND	
OVERWEIGHT (HP 2010)	49.4			
VERY OVERWEIGHT (HP 2010)	13.8			15
BLOOD PRESSURE CHECKED IN PAST 2 YEARS	96.0	94.5	9TH	
HIGH BLOOD PRESSURE	21.1	24.0	6TH	16
CHOLESTEROL CHECKED IN PAST 5 YEARS	76.6	69.1	2ND	80
HIGH CHOLESTEROL	28.2	30.0	14TH	14
1 OR MORE SUNBURNS IN PAST YEAR	32.9			
2 OR MORE SUNBURNS IN PAST YEAR	18.5			
FLU VACCINATION IN PAST YEAR, AGE 65+	67.7	67.4	23RD	90
FLU VACCINATION IN PAST YEAR, AGE 50-64	38.3			

EVER HAD PNEUMONIA VACCINATION, AGE 65+	56.0	54.9	17TH	90
CANCER SCREENING				
BLOOD STOOL TEST EVER, AGE 50+	43.7			
BLOOD STOOL TEST IN PAST 2 YEARS, AGE 50+	34.5	26.2	9TH	50
SIGMOIDOSCOPY IN PAST 5 YEARS, AGE 50+	35.6			
MAMMOGRAM EVER, AGE 40+	90.5	86.2	6TH	
MAMMOGRAM IN 2 YRS, AGE 50+	83.2	75.5	9TH	
CLINICAL BREAST EXAM IN 2 YRS	82.3			
PAP SMEAR EVER	93.3	95.1	41ST	97

*Rankings are based on lowest risk or healthiest behavior – 1st = best, 52nd = worst.

SUMMARY OF 1999 BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM RESULTS, CONTINUED

	1999 MASSACHUSETTS (%)	*1999 NATIONAL MEDIAN (%)*	*1999 NATIONAL RANKING*	*HP 2010 OBJECTIVE (%)*
PAP SMEAR IN 3 YRS	87.4	85.4	17TH	
PROSTATE SPECIFIC ANTIGEN (PSA), AGE 50+	71.1			
PSA TEST IN PAST YEAR, 50+	59.3			
DIGITAL RECTAL EXAM IN PAST YEAR	57.4			
HEALTH CONDITIONS				
DIABETES	4.9	5.9	13TH	2.5
HEARD, SEEN OR READ INFO ON IMPORTANCE OF CONTROLLING DIABETES	53.6			
DISABILITY OR LIMITATION	18.6			
DISABILITY THAT REQUIRES HELP	5.0			
WOMEN'S HEALTH				
EVER SEXUALLY ASSAULTED	19.2			
SEXUALLY ASSAULTED IN PAST YEAR	0.7			
INTIMATE PARTNER ABUSE IN YEAR	5.0			
FOLIC ACID AWARENESS	79.3			
DAILY FOLIC ACID USE	41.1			
CHILD HEALTH				
NO HEALTH INSURANCE, CHILDREN	2.0			
UNABLE TO SEE DOCTOR BECAUSE OF COST	2.3			
APPROPRIATE PREVENTATIVE CARE	95.5			
VISITED A DENTIST IN PAST YEAR	89.1			
UNABLE TO SEE DENTIST BECAUSE OF COST	5.2			
CHICKEN POX IN PAST YEAR	2.3			

TOLD BY DOCTOR THEY HAD ASTHMA	10.6			
DISABILITY OR FUNCTIONAL LIMITATION	2.2			
ADDITIONAL TOPICS				
HIGH/MEDIUM RISK OF HIV INFECTION	8.1	6.7	46TH	NA
EVER TESTED FOR HIV	46.2			
TESTED FOR HIV IN PAST YEAR	15.9			
GAMBLED IN PAST YEAR	46.0			
EVER HAD GAMBLING PROBLEM	3.2			
ELDER HEALTH M (65+)				
FUNCTIONAL LIMITATION	30.7			
USE HEARING AID	9.9			
BLIND IN ONE OR BOTH EYES	7.6			

INTRODUCTION

WHAT IS THE BRFSS?

The Behavioral Risk Factor Surveillance System (BRFSS) is a continuous, random-digit-dial, telephone survey of adults age 18 and older, and is conducted in all states as a joint collaboration between the Centers for Disease Control and Prevention (CDC) and state Departments of Health. The survey has been in the field in Massachusetts since 1986. The BRFSS collects data on a variety of health characteristics, risk factors for chronic conditions, and preventive behaviors. The information obtained in this survey assists in identifying the need for health interventions, monitoring the effectiveness of existing intervention and prevention programs, developing health policy and legislation, and measuring progress toward attaining state and national health objectives.

BRFSS collects data on a variety of health characteristics, risk factors for chronic conditions, and preventive behaviors.

Each year the BRFSS includes a core set of questions that were developed by the CDC. In 1999, these questions pertained to health status, health care access and utilization, dental health, tobacco use, alcohol use, weight control, hypertension and cholesterol awareness, sunburn, colorectal cancer screening, breast and cervical cancer screening, diabetes, and HIV/AIDS. In addition to the core CDC questions, the Massachusetts BRFSS included several additional topics including disability and activity limitations, environmental tobacco smoke, sexual assault and intimate partner violence, folic acid, prostate cancer screening, flu and pneumonia vaccinations, gambling, elder health, and children's health.

ABOUT THIS REPORT

This report summarizes selected results from the 1999 Massachusetts BRFSS. First, we present overall percentage estimates of key variables followed by percentage estimates in specific demographic groups. This section allows us to assess whether there are specific groups of adults who are at

risk for chronic conditions or who are more likely to participate in healthy behaviors. It is important to note that these data are not adjusted for age or other differences across these characteristics. For example, adults who are retired may be more likely than students to report fair or poor health. However, age is a strong predictor of health status and retired adults are more likely to be older. In this instance, the differences noted by employment are more likely to be due to differences in age.

Following the demographic section, we compare the 1999 results to previous years' data to assess trends over time for questions that have been asked in Massachusetts in multiple years. Next, wherever possible, we compare Massachusetts results to national data and Healthy People 2010 Objectives*. For national comparisons, we provide the median* percent and the range of estimates for all fifty states, the District of Columbia, and Puerto Rico. We also provide a ranking of Massachusetts relative to other states, although this ranking does not take into account the degree of uncertainty of the estimates within each state due to random sampling variation. Rankings are based on the lowest risk or healthiest behavior, so that a rank of 1st = best and 52nd = worst. For example, Massachusetts had the second lowest percentage of adults who were overweight (rank = 2nd); it also had the sixth highest percentage of women age 40 and over who reported ever having a mammogram (rank = 6th).

This report provides estimates for 1999 data, assesses trends over time, compares our state with U.S. data and Healthy People 2010 Objectives, and

Finally, we present special topics for several of the sections. These detailed analyses of the data allow us to go into more depth in several health areas. For some of the special topics, we combine 1999 data with previous years in order to increase stability of the estimates.

* see glossary

BRFSS METHODOLOGY

The Massachusetts BRFSS is a random-digit-dial (RDD) telephone survey of non-institutionalized Massachusetts adults residing in households with telephones, and in 1999 was conducted by ORC Macro, Inc. The sampling of the survey population involved a list-assisted, stratified RDD sampling frame, which assures that Massachusetts households with telephone numbers assigned after publication of the current directories, as well as households with deliberately unlisted numbers, are included in the sample in appropriate proportions. This methodology is designed to more efficiently and validly reach all telephone equipped households, and to provide population estimates of health condition and behaviors. Telephone numbers were randomly selected, and multiple attempts were made to reach each household. To be eligible to participate in the survey, a household had to be occupied by at least one adult aged 18 and older. Institutions, group quarters, and temporary residences lived-in for less than one month per year were ineligible. In order to provide estimates of health at the local level, additional interviews were conducted among adults residing in the following major cities in the Commonwealth: Boston, Worcester, Springfield, Lawrence, Lowell, Fall River, and New Bedford.

The BRFSS is a random – digit-dial telephone survey of Massachusetts adults 18 and older.

Once a household was contacted, one adult was randomly selected to complete the interview. No proxy respondents or substitutions were allowed in the event that the selected adult was unwilling or unable to complete the interview for any reason such as language barriers, disability, or lack of availability. In addition to English, the survey was conducted in Spanish, Portuguese, Haitian, and Creole. In 1999, 7,287 adults completed the survey; among those determined to be eligible, interviews were completed with 55% of the potential respondents. Data were weighted to reflect the probability of

In 1999, 7,287 adults participated in the BRFSS. All data are weighted, and provide population-based estimates of

selection and differential participation by sex and age. All analyses presented in this report were conducted using SUDAAN and SAS software and are considered estimates for the adult population in Massachusetts. For each estimate in the core section we include a 95% confidence interval* in order to assess the variability of the data. Since the survey represents a random sample of the population, and not a complete census, 95% confidence intervals* provide a range of values that most likely contain the true percent estimates for the population.

The 7,287 participants included 2,263 interviewed as part of a special sample of Boston residents, supported by both the Massachusetts Department of Public Health (MDPH) and the Boston Public Health Commission. These interviews were in addition to 450 Boston residents interviewed in the statewide BRFSS. Because there were minor differences in methodology and questionnaire content between the statewide and "Boston-only" administration of the survey, only the statewide records were forwarded to CDC. Estimates of health behaviors and conditions reported by the CDC for Massachusetts are therefore slightly different from the estimates reported in this publication, which include both the statewide and "Boston-only" samples. For example, the CDC reports the prevalence of current smoking in Massachusetts adults is 19.3%, while the prevalence of current smoking reported in this publication is 20.2%. The difference between the two estimates is due to random sampling variation. Because the data from participants in the "Boston-only" Survey are weighted to reflect the proportion of Boston residents in the state population, both the CDC and MDPH estimates are valid estimates of state residents.

There are some limitations that should be considered when interpreting results from the BRFSS. Households that do not have a telephone do not have the opportunity to participate in the survey. Although only 2% of Massachusetts households lack a telephone, almost 10% of households living below poverty lack a phone based on 1990 Census data. A substantial percentage of households contacted to participate in the BRFSS did not

* see glossary

complete the survey. Although households were telephoned on repeated occasions, interviewers were not always
able to reach the randomly selected adult in the household. In addition, some adults contacted did not agree to participate in the survey. To the degree that respondents who participated in the survey differed significantly from those not included in the survey, bias is present in the results. The weighting of the data partially takes into account this non-response.

All data collected by the BRFSS are based on self-report from the respondents. By its nature, self-reported data may be subject to error for several reasons. An individual may have difficulty remembering events that occurred a long time ago or the frequency of certain behaviors. Some respondents may overreport socially desirable behaviors, while underreporting behaviors they perceive to be less acceptable. Finally, because the BRFSS surveys a randomly selected sample of Massachusetts adults, these results may differ from another random sample to some extent simply due to chance.

DEMOGRAPHIC PROFILE OF MASSACHUSETTS BRFSS SURVEY RESPONDENTS

DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS IN THE MASSACHUSETTS BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM, 1999 (UNWEIGHTED SAMPLE SIZE AND WEIGHTED PERCENT)		
	UNWEIGHTED SAMPLE SIZE N	WEIGHTED PERCENT (%)
OVERALL	7287	100
GENDER		
MALE	2945	47.4
FEMALE	4342	52.6
AGE GROUP		
18 - 24	737	14.0
25 - 34	1744	22.0
35 - 44	1616	20.6
45 - 54	1175	17.1
55 - 64	769	10.3
65 - 74	629	10.1
75 AND OLDER	509	5.9
RACE/ETHNICITY		
WHITE	5419	86.0
BLACK	711	3.8
HISPANIC	740	6.5
ASIAN	209	2.5
EDUCATION		
< HIGH SCHOOL	750	8.7
HIGH SCHOOL	2080	28.3
COLLEGE 1 - 3 YRS	1718	24.7
COLLEGE 4+ YRS	2696	38.3
HOUSEHOLD INCOME		
<$25,000	1476	24.1
$25 - 34,999	811	12.9
$35 - 49,999	1036	18.0
$50 - 74,999	966	19.6
$75,000+	1194	25.3
EMPLOYMENT		
EMPLOYED	4813	65.7
UNEMPLOYED	317	3.5
UNABLE TO WORK	293	3.3
HOMEMAKER	313	4.4
STUDENT	330	5.6
RETIRED	1168	17.5

SECTION 1. OVERALL HEALTH STATUS

All respondents were asked to describe their overall health status as excellent, very good, good, fair, or poor, and were also asked on how many days in the previous month their mental health had been poor, and how many days physical or mental health had limited their daily activities.

In 1999, 12% of Massachusetts adults described their health as fair or poor. Older adults, adults with lower levels of income and education, and those unable to work were more likely to report fair or poor health. 8% of adults reported poor mental health on 15 or more days in the previous month, and 5% said their mental or physical health limited their activities for 15 or more days in the previous month. Hispanics, adults with lower levels of education and income, and those unable to work were more likely to report poor mental health. The demographic characteristics of adults limited by poor mental or physical health were similar to those who reported fair or poor health.

OVERALL HEALTH STATUS AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	FAIR OR POOR HEALTH		15+ DAYS POOR MENTAL HEALTH IN PAST MONTH		15+ DAYS HEALTH LIMITED ACTIVITIES	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	11.5	10.5 - 12.5	8.0	7.1 - 8.8	5.4	4.7 - 6.1
GENDER						
MALE	11.3	9.7 - 12.8	7.6	6.2 - 9.0	5.3	4.2 - 6.3
FEMALE	11.6	10.4 - 12.9	8.3	7.2 - 9.4	5.6	4.7 - 6.4
AGE GROUP						
18 – 24	5.8	3.6 - 8.0	7.4	4.9 - 9.9	2.8	1.1 - 4.6
25 – 34	4.9	3.1 - 6.6	6.9	4.8 - 9.0	2.5	1.5 - 3.4
35 – 44	5.8	4.4 - 7.2	9.4	7.6 - 11.2	4.7	3.4 - 5.9
45 – 54	10.4	8.2 - 12.6	9.9	7.7 - 12.2	6.5	4.7 - 8.4
55 – 64	19.5	15.3 - 23.7	8.1	5.7 - 10.6	6.1	4.0 - 8.2
65 - 74	23.3	19.3 - 27.2	5.4	3.4 - 7.4	9.0	6.3 - 11.7
75 AND OLDER	34.8	29.0 - 40.6	7.6	4.7 - 10.5	13.0	9.3 - 16.7
RACE/ETHNICITY						
WHITE, NON-HISPANIC	11.1	10.0 - 12.2	7.6	6.7 - 8.6	5.4	4.7 - 6.2
BLACK, NON-HISPANIC	14.9	10.3 - 19.4	8.2	6.0 - 10.3	9.0	5.6 - 12.4
HISPANIC	15.5	12.0 - 19.0	12.0	8.3 - 15.7	4.1	2.0 - 6.3
ASIAN	9.4	4.1 - 14.7	5.3	9.0 - 9.6	4.5	0.3 - 8.8
EDUCATION						
< HIGH SCHOOL	26.9	21.8 - 32.1	10.5	7.5 - 13.5	9.0	6.1 - 11.9
HIGH SCHOOL	15.3	13.4 - 17.3	9.0	7.4 - 10.6	7.2	5.8 - 8.7
COLLEGE 1 - 3 YRS	10.2	8.3 - 12.0	7.9	6.2 - 9.5	5.6	4.2 - 7.0
COLLEGE 4+ YRS	5.8	4.5 - 7.1	6.6	5.1 - 8.0	3.2	2.3 - 4.0
HOUSEHOLD INCOME						
< $25,000	25.1	21.7 - 28.6	13.4	11.0 - 15.9	9.4	7.4 - 11.3
$25 - 34,999	10.7	7.9 - 13.5	6.6	4.4 - 8.7	5.0	2.8 - 7.2
$35 - 49,999	6.3	4.4 - 8.2	5.3	3.7 - 7.0	5.0	3.2 - 6.9
$50 - 74,999	4.1	2.5 - 5.7	7.7	4.7 - 10.6	3.7	2.2 - 5.3
$75,000+	2.5	1.4 - 3.6	5.3	3.8 - 6.9	1.3	0.6 - 2.1
EMPLOYMENT						
EMPLOYED	4.7	3.9 - 5.6	6.6	5.7 - 7.5	2.4	1.8 - 3.0
UNEMPLOYED	21.4	14.7 - 28.0	16.9	10.9 - 22.9	11.6	6.5 - 16.9
UNABLE TO WORK	57.8	48.6 - 66.9	33.0	25.0 - 40.9	39.8	31.2 - 48.4

HOMEMAKER	6.7	3.4 - 10.0	7.3	3.8 - 10.8	2.1	0.4 - 3.8
STUDENT	4.5	1.4 - 7.6	6.3	0 - 12.7	1.5	0.0 - 3.3
RETIRED	29.4	26.0 - 32.8	7.2	5.4 - 9.0	11.5	9.2 - 13.9

Table 1a Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  There has been no significant change in the percentage of adults in fair or poor health since 1992. There has been no real change in the percentage of adults with poor mental health 15 or more days in the past month has decreased slightly since 1992.

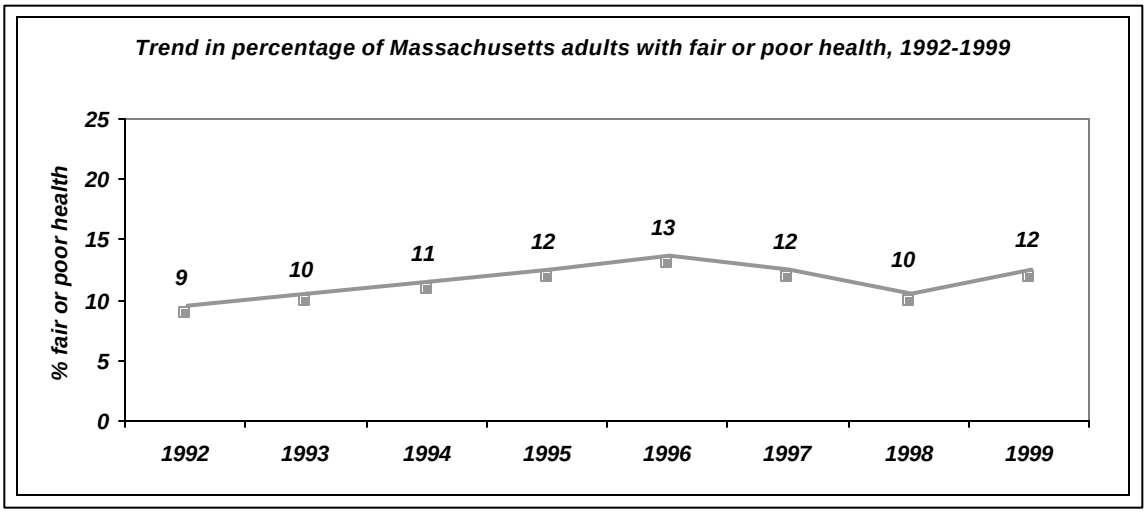


Figure 1a Source: Massachusetts BRFSS, 1992 - 1999

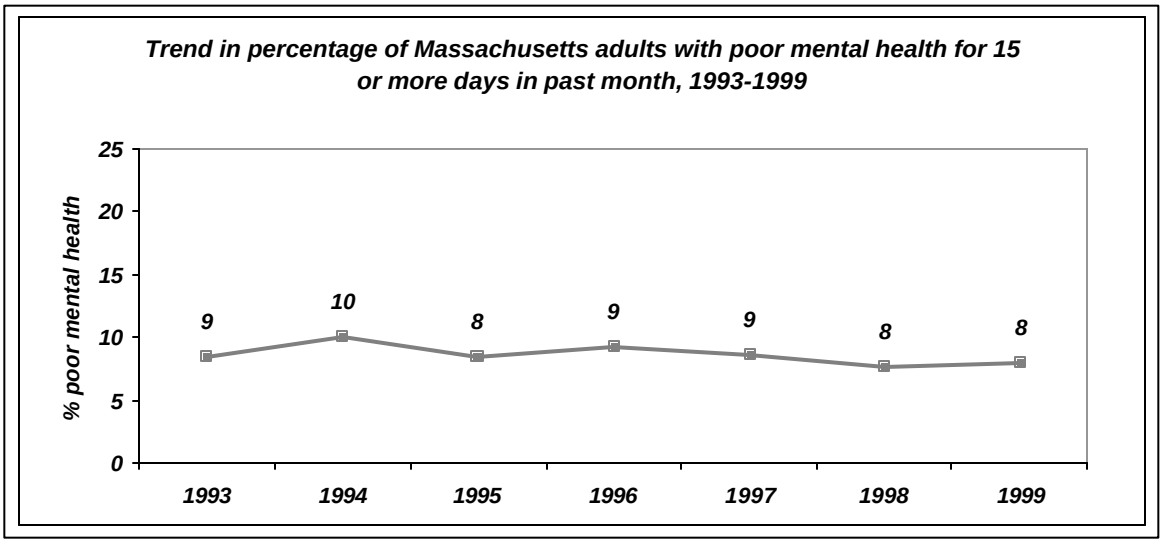


Figure 1b Source: Massachusetts BRFSS, 1993 - 1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Compared to other states in 1999, Massachusetts had the 9th lowest percentage of adults

in fair or poor health.

OVERALL HEALTH STATUS	
	FAIR/POOR HEALTH
Massachusetts %	11.5%
US Median %	13.1%
Range of US States	8.4 - 33.0%
*Massachusetts rank**	9th
Healthy People 2010	NA

*Based on lowest risk or healthiest behavior – 1st = best

Table 1b Source: US and MA BRFSS, 1999

SECTION 2. QUALITY OF LIFE

All respondents were asked to self-assess measures of quality of life. Respondents were asked on how many days in the previous month they had felt sad, blue or depressed, how many days pain made it hard to do usual activities, and how many days they felt very healthy and full of energy.

7% of Massachusetts adults reported feeling depressed 15 or more days in the past month. Adults with low levels of education and adults unable to work were more likely to report feeling depressed. Eight percent of adults reported pain that interfered with usual activities on 15 or more days in the past month. Older adults, adults unable to work, and adults with low levels of income and education were more likely to reported being limited by pain. 72% percent of adults reported feeling full of energy for more than 15 days in the past month. Adults unable to work were less likely to report feeling energetic, while adults with high levels of education and income were more likely to report high energy.

QUALITY OF LIFE AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	15+ DAYS DEPRESSED		15+ DAYS PAIN		15+ DAYS FULL OF ENERGY	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	6.5	5.7 - 7.2	7.5	6.6 - 8.4	72.2	70.6 - 73.9
GENDER						
MALE	6.1	5.0 - 7.2	7.7	6.3 - 9.1	73.0	70.4 - 75.6
FEMALE	6.8	5.8 - 7.8	7.3	6.2 - 8.4	71.5	69.4 - 73.6
AGE GROUP						
18 – 24	5.5	3.5 - 7.5	2.0	0.6 - 3.3	72.4	67.0 - 77.8
25 – 34	3.8	2.7 - 5.0	3.9	2.1 - 5.6	73.9	70.1 - 77.7
35 – 44	6.2	4.7 - 7.6	6.2	4.7 - 7.6	74.4	71.2 - 77.7
45 – 54	8.9	6.7 - 11.0	10.0	7.2 - 12.9	70.2	66.1 - 74.2
55 – 64	8.5	5.9 - 11.2	12.6	9.4 - 15.8	74.2	69.7 - 78.7
65 – 74	5.5	3.3 - 7.7	13.6	10.3 - 16.8	70.4	65.3 - 75.5
75 AND OLDER	10.6	7.0 - 14.2	12.5	8.8 - 16.2	65.4	59.2 - 71.6
RACE/ETHNICITY						
WHITE, NON-HISPANIC	6.1	5.3 - 6.8	7.6	6.6 - 8.6	72.3	70.5 - 74.1
BLACK, NON-HISPANIC	8.8	5.6 - 12.1	10.5	6.8 - 14.1	67.3	58.1 - 76.5
HISPANIC	9.1	6.0 - 12.1	5.4	3.2 - 7.6	72.0	66.1 - 77.9
ASIAN	6.4	1.3 - 11.5	3.0	0.0 - 7.1	81.4	71.9 - 90.9
EDUCATION						
< HIGH SCHOOL	9.9	6.9 - 12.9	14.2	9.5 - 18.9	63.0	56.6 - 69.4
HIGH SCHOOL	8.1	6.5 - 9.6	9.9	8.2 - 11.6	70.7	67.6 - 73.8
COLLEGE 1 - 3 YRS	5.9	4.5 - 7.3	6.8	5.2 - 8.3	73.6	70.4 - 76.8

COLLEGE 4+ YRS	4.9	3.8 - 5.9	4.9	3.6 - 6.1	74.7	72.0 - 77.3
HOUSEHOLD INCOME						
<$25,000	12.1	9.8 - 14.4	13.9	10.8 - 17.1	61.9	57.6 - 66.2
$25 - 34,999	6.2	4.0 - 8.4	7.6	5.0 - 10.2	72.1	67.0 - 77.1
$35 - 49,999	4.2	2.6 - 5.7	6.4	4.4 - 8.4	77.2	73.2 - 81.1
$50 - 74,999	4.5	2.8 - 6.1	5.1	3.3 - 6.9	73.8	69.5 - 78.1
$75,000+	2.9	1.8 - 4.0	2.1	1.1 - 3.0	81.7	78.5 - 85.0
EMPLOYMENT						
EMPLOYED	4.7	3.9 - 5.4	4.1	3.2 - 4.9	75.5	73.6 - 77.5
UNEMPLOYED	15.1	9.2 - 21.0	14.8	9.2 - 20.4	67.7	59.1 - 76.2
UNABLE TO WORK	34.0	25.7 - 42.4	53.5	44.5 - 62.5	32.9	23.6 - 42.2
HOMEMAKER	3.6	1.4 - 5.8	2.4	0.7 - 4.1	74.6	67.8 - 81.3
STUDENT	1.8	0.8 - 2.8	1.2	0.0 - 3.0	73.0	63.8 - 82.1
RETIRED	9.0	6.8 - 11.1	14.3	11.8 - 16.9	67.1	63.1 - 71.0

Table 2a Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  data not available

- **Comparison with National Data and Healthy People 2010 Objectives:**
  data not available

BOX 2. RESEARCH BRIEFS ON QUALITY OF LIFE

Quality of Life Measures and Life Satisfaction

In addition to quality of life questions about feeling depressed, being limited by pain, and feeling healthy and full of energy, all adults were asked about two additional quality of life measures – the number of days in the past month that they felt worried, tense, or anxious, and the number of days in the past month that they did not get enough rest or sleep. Respondents were considered to have poor quality of life with regard to each measure if they reported 15 or more days in the past month with the symptom. Respondents were also asked how satisfied they were with their life - very satisfied, satisfied, dissatisfied or very dissatisfied. Figure 2a shows the relationship between each quality of life measure and satisfaction with life. Poor sleep and low energy had the least effect on life satisfaction, while depression had the greatest effect on satisfaction with life.

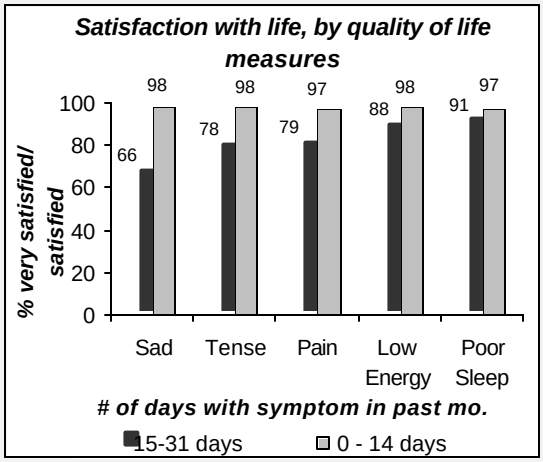


Figure 2a Source: Massachusetts BRFSS, 1999

Frequent Mental Distress and Preventive Health Care

Respondents were categorized as having frequent mental distress (FMD) if they were depressed or tense for 15 or more days in the past month. We examined the relationship between FMD and appropriate preventive health care. Respondents were categorized as having appropriate preventive health care if they had a medical and dental checkup in the past year, had their blood pressure checked in the past two years and cholesterol checked in the past 5 years, and had cancer screenings recommended for their age and gender. Overall, 40% of persons who did not experience frequent mental distress in the past month received appropriate preventive health care, compared to 34% of those with frequent mental distress. Figure 2b examines the relationship between preventive care and FMD separately for men and women.

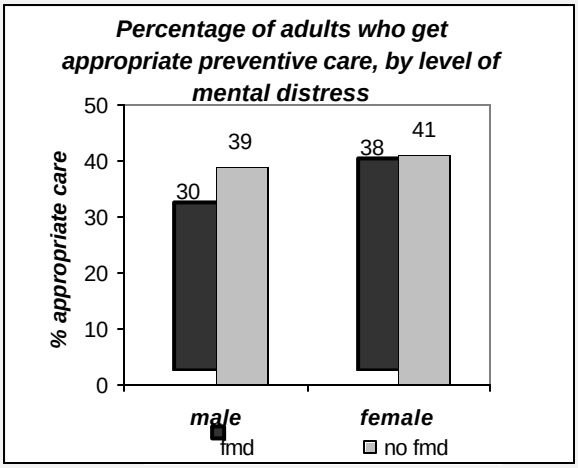


Figure 2b Source: Massachusetts BRFSS, 1999

SECTION 3. HEALTH ACCESS AND UTILIZATION

All respondents were asked whether they currently had health insurance and whether they were unable to see a doctor in the past year due to cost.

In 1999, 5% of Massachusetts adults were currently without health insurance. Men, younger adults, non-Whites, and unemployed individuals were more likely to be uninsured. The percentage of adults with no insurance also increased with decreasing levels of education and income. 8% of adults did not see a doctor in the past year because of cost. Younger adults, Hispanics, Asians, unemployed adults, and those with lower education or income were more likely to be unable to see a doctor because of cost.

HEALTH ACCESS AND UTILIZATION AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	NO HEALTH INSURANCE		DID NOT SEE DOCTOR DUE TO COST	
	%	95% CI	%	95% CI
OVERALL	5.4	4.4 - 6.3	7.5	6.6 - 8.5
GENDER				
MALE	7.3	5.5 - 9.2	7.0	5.4 - 8.6
FEMALE	3.6	2.9 - 4.3	8.0	7.0 - 9.1
AGE GROUP				
18 – 24	11.7	6.4 - 16.9	11.4	7.1 - 15.6
25 – 34	5.9	4.4 - 7.4	8.3	6.1 - 10.4
35 – 44	6.0	4.1 - 8.0	7.5	6.0 - 9.1
45 – 54	4.0	2.6 - 5.5	7.7	5.8 - 9.7
55 – 64	4.5	2.5 - 6.6	5.5	3.6 - 7.4
65 – 74	0.7	0.1 - 1.3	4.9	3.0 - 6.8
75 AND OLDER	0.2	0 - 0.5	4.3	2.2 - 6.4
RACE/ETHNICITY				
WHITE, NON-HISPANIC	4.8	3.8 - 6.0	6.2	5.3 - 7.2
BLACK, NON-HISPANIC	8.5	5.1 - 11.8	8.3	5.1 - 11.5
HISPANIC	7.6	4.7 - 10.4	20.0	14.4 - 25.5
ASIAN	8.3	2.5 - 13.8	15.7	8.0 - 23.4
EDUCATION				
< HIGH SCHOOL	10.0	4.2 - 15.8	15.8	10.1 - 21.4
HIGH SCHOOL	6.2	4.9 - 7.5	7.0	5.6 - 8.4
COLLEGE 1 - 3 YRS	5.7	3.4 - 8.0	8.1	6.0 - 10.1
COLLEGE 4+ YRS	3.6	2.4 - 4.7	5.8	4.6 - 7.0
HOUSEHOLD INCOME				
<$25,000	9.7	6.6 - 12.8	11.3	9.2 - 13.4
$25 - 34,999	6.6	4.2 - 9.0	10.5	7.7 - 13.4
$35 - 49,999	4.1	2.5 - 5.6	8.0	5.5 - 10.4
$50 - 74,999	2.8	1.4 - 4.2	5.0	2.3 - 7.6
$75,000+	3.1	1.3 - 5.0	3.1	1.9 - 4.4
EMPLOYMENT				
EMPLOYED	5.9	4.7 - 7.1	7.5	6.3 - 8.7
UNEMPLOYED	16.6	10.2 - 23.0	16.4	10.8 - 21.9
UNABLE TO WORK	3.8	0.6 - 6.9	17.8	11.9 - 23.8
HOMEMAKER	3.6	1.3 - 5.8	9.3	1.6 - 17.0
STUDENT	7.0	0.0 - 15.6	4.8	2.0 - 7.5
RETIRED	1.3	0.6 - 2.0	4.6	3.2 - 6.0

* Health insurance was calculated differently in 1999 compared to previous BRFSS reports. In previous reports, respondents were classified as having no insurance if they answered no to the following question: "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?" In 1999, respondents were classified as having no insurance if they responded no to this question and no to the following question: " There are some types of health insurance you may not have considered: Please tell me if you have any of the following:[respondent is read list of types of insurance]". Estimates generated for this report are therefore not comparable to estimates generated for earlier BRFSS reports.

Table 3a

Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  Since 1996, the percentage of adults who did not have health insurance has decreased. Since 1991, there has been no change in the percentage of adults who could not afford to see a doctor within the past year due to cost.

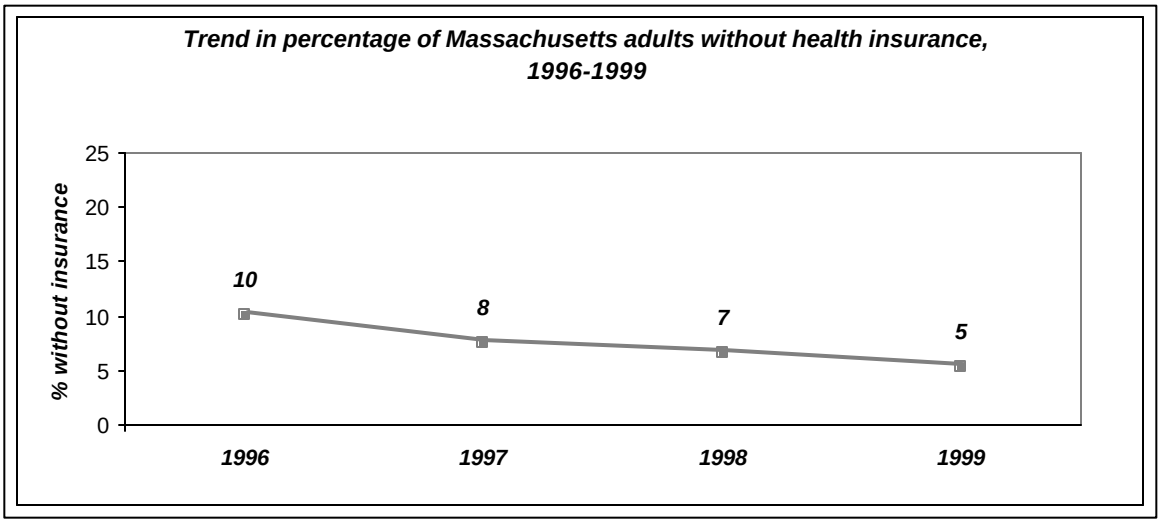


Figure 3a Source: Massachusetts BRFSS, 1996-1999

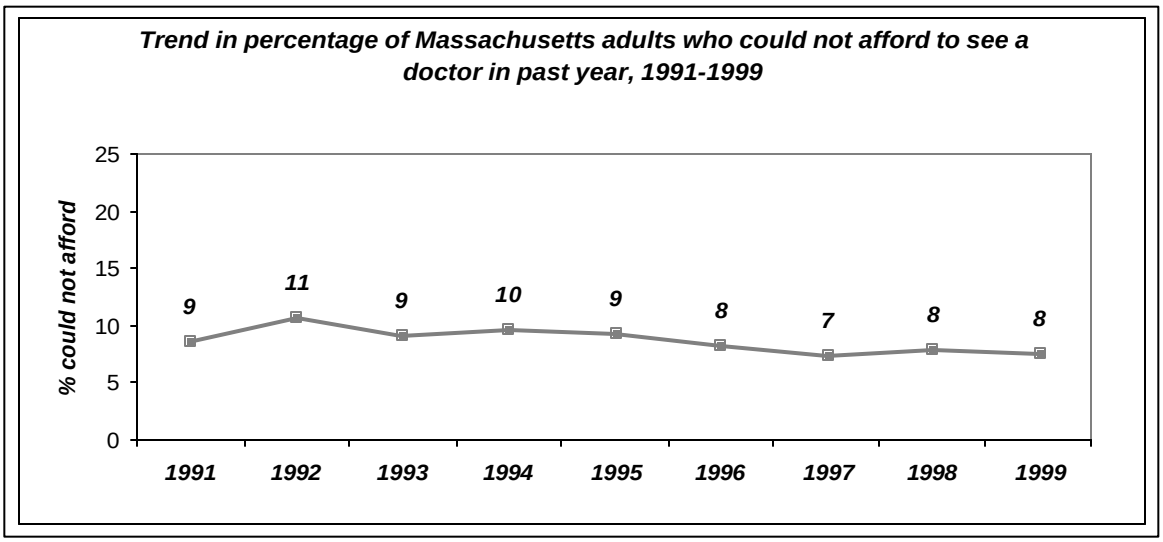


Figure 3b Source: Massachusetts BRFSS, 1991-1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Compared to other states in 1999, Massachusetts had the 2nd lowest prevalence of adults without health insurance, and the 10th lowest percent of adults unable to se a doctor because of cost. In 1999, Massachusetts has not yet reached the Healthy People 2010 Objective to reduce the percentage of people without health insurance to 0%.

HEALTH ACCESS AND UTILIZATION		
	NO HEALTH INSURANCE	DID NOT SEE A DOCTOR BECAUSE OF COST
Massachusetts %	8.0% *	7.5%
US Median %	12.4%	9.6%
Range of US States	5.8 - 23.3%	6.4 - 15.4%
*Massachusetts rank***	2nd	10th

Healthy People 2010	0%	NA

* For comparison with national estimates, this prevalence estimate reflects only responses to the first health insurance question.

** Based on lowest risk or healthiest behavior – 1st = best

Table 3b Source: US and MA BRFSS, 1999, HP 2010 Objectives

BOX 3: RESEARCH BRIEFS ON HEALTH ACCESS AND UTILIZATION

Health Insurance

Having health insurance is linked to better health outcomes, decreased mortality, and increased access to health care. Often, health insurance is not comprehensive, forcing out-of-pocket medical expenses which may be linked to adverse health consequences. In 1999, the BRFSS asked various questions about health insurance. Respondents were asked if they currently had health insurance, and if there was time when they needed to see a doctor but could not because of cost. Those who had insurance but could not see a doctor because of cost were classified as underinsured. Figure 3c examines the percentage of uninsured and underinsured by race. Hispanic adults were more likely to be underinsured, while Blacks were more likely to be uninsured (Figure 3c).

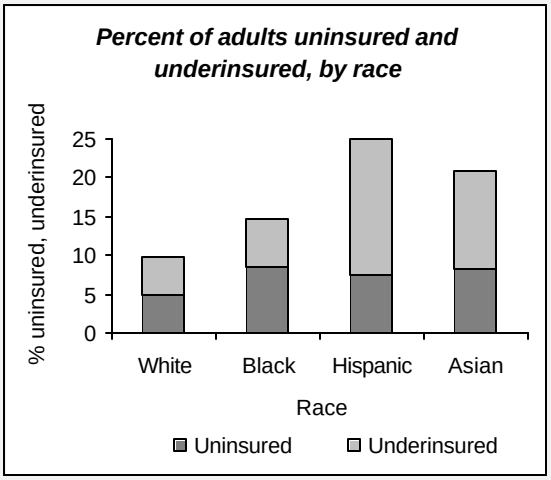


Figure 3c Source: MA BRFSS, 1999

Health Insurance and Health Status

Inadequate health insurance was defined as currently having no insurance, not having insurance at some time in the past year, or being unable to see a doctor due to cost. In 1999, 15% of Massachusetts residents did not have adequate insurance. Figure 3d compares self-reported health status among those with adequate and inadequate health insurance in 1999 by race. Those with inadequate insurance were more likely to report fair or poor health.

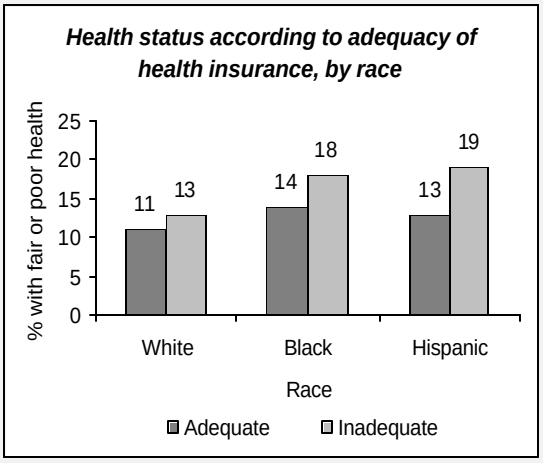


Figure 3d Source: MA BRFSS, 1999

Health access over time

Providing all Massachusetts residents with health insurance had been a public health priority for many years. Figure 3e shows the trends in the percentage of uninsured and underinsured residents from 1996 – 1999. The percentage of uninsured residents has significantly decreased while the number of underinsured has seen almost no change.

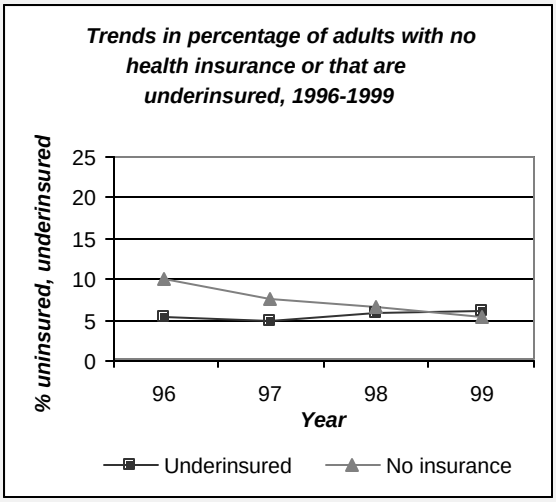


Figure 3e Source: MA BRFSS, 1999

SECTION 4. DENTAL HEALTH

All respondents were asked questions related to dental health. Respondents were asked when they had last visited a dentist for any reason and how many teeth they had lost due to decay or gum disease.

In 1999, 76% of adults reported visiting a dentist in the previous year. Men, Blacks, Hispanics, and adults age 65 and older were less likely to have gone to the dentist in the past year. Income and education were inversely related to visiting the dentist. A small percentage of those unemployed or unable to work reported seeing a dentist in the past year. 18% of adults reported missing 6 or more teeth due to decay. Men, Hispanics and Asians were less likely to report tooth loss from decay. The percentage of adults with substantial tooth loss increased with increasing age and decreasing levels of income and education.

DENTAL HEALTH AMONG MASSACHUSETTS ADULTS, 1999

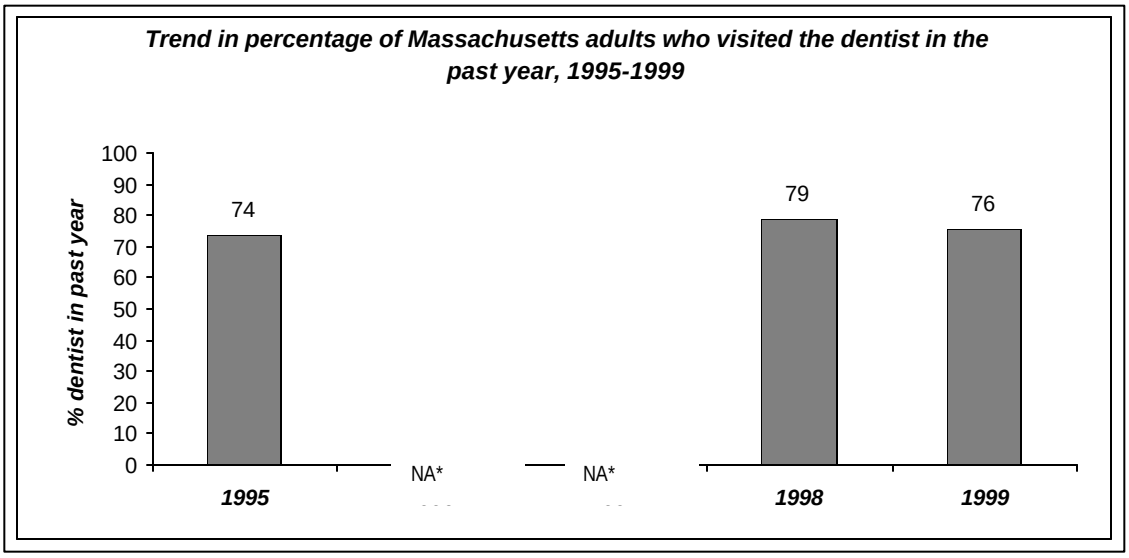
(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	DENTAL VISIT IN PAST YEAR		6 OR MORE TEETH MISSING FROM DISEASE	
	%	95% CI	%	95% CI
OVERALL	75.6	74.2 - 77.1	17.6	16.4 - 18.8
GENDER				
MALE	72.7	70.3 - 75.1	15.8	14.0 - 17.6
FEMALE	78.3	76.6 - 79.9	19.2	17.7 - 20.7
AGE GROUP				
18 – 24	77.3	72.4 - 82.2	0.4	0.0 - 1.1
25 – 34	75.4	72.1 - 78.6	2.5	0.8 - 4.3
35 – 44	79.1	76.2 - 82.1	6.1	4.7 - 7.5
45 – 54	80.2	77.0 - 83.5	15.4	12.8 - 18.1
55 – 64	76.3	72.4 - 80.2	38.7	33.8 - 43.5
65 – 74	66.5	62.0 - 70.9	52.6	47.9 - 57.3
75 AND OLDER	63.7	58.6 - 68.9	55.3	49.9 - 60.7
RACE/ETHNICITY				
WHITE, NON-HISPANIC	76.7	75.1 - 78.3	18.7	17.4 - 20.1
BLACK, NON-HISPANIC	66.6	61.1 - 72.2	19.7	15.3 - 24.1
HISPANIC	66.2	60.1 - 72.2	9.9	4.5 - 15.4
ASIAN	73.1	64.2 - 82.1	2.3	0.0 - 4.8
EDUCATION				
< HIGH SCHOOL	54.3	48.1 - 60.5	36.3	30.7 - 41.9
HIGH SCHOOL	71.0	68.5 - 73.6	25.7	23.2 - 28.1
COLLEGE 1 - 3 YRS	76.5	73.6 - 79.5	17.6	15.1 - 20.2
COLLEGE 4+ YRS	83.1	81.0 - 85.1	7.4	6.2 - 8.7
HOUSEHOLD INCOME				
<$25,000	61.5	57.8 - 65.3	30.9	27.4 - 34.4
$25 - 34,999	69.5	64.7 - 74.2	19.5	15.7 - 23.2
$35 - 49,999	79.2	75.9 - 82.6	17.1	14.1 - 20.1
$50 - 74,999	81.0	77.0 - 84.9	9.7	6.7 - 12.7
$75,000+	86.9	84.2 - 89.6	5.9	4.2 - 7.6
EMPLOYMENT				
EMPLOYED	79.5	77.8 - 81.2	9.3	8.2 - 10.3
UNEMPLOYED	67.5	60.2 - 74.8	13.9	8.9 - 18.9
UNABLE TO WORK	51.7	42.7 - 60.7	31.6	23.9 - 39.3
HOMEMAKER	76.3	68.3 - 84.3	13.9	6.0 - 21.8
STUDENT	84.5	77.2 - 91.8	1.9	0.2 - 3.5
RETIRED	63.9	60.0 - 67.3	53.8	50.2 - 57.4

Table 4a

Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  Since 1995, the percentage of Massachusetts adults who visited the dentist in the past year has not changed.



*Data not available

Figure 4a Source: Massachusetts BRFSS, 1995 - 1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Compared to other states in 1999, Massachusetts had the third highest percentage of adults who visited the dentist in the past year, and the 16th lowest percentage of adults who had 6 or more teeth missing from disease.

ORAL HEALTH		
	DENTAL VISIT IN PAST YEAR	6 OR MORE TEETH MISSING FROM DISEASE
Massachusetts %	75.6%	17.6%
US Median %	68.1%	19.9%
Range of US States	56.4 - 78.2%	13.1 - 35.6%
*Massachusetts rank**	3rd	16th
Healthy People 2010	NA	NA

*Based on lowest risk or healthiest behavior – 1st = best

Table 4b Source: US and MA BRFSS, 1999

BOX 4: RESEARCH BRIEFS ON DENTAL HEALTH

Use of dental services

Cost has often been cited as the principal barrier to dental care. However, whether or not a person seeks health care is complex, and is probably related to a variety of demographic and lifestyle factors. Tobacco and alcohol use increase the risk of several oral diseases including periodontal disease, tooth loss, soft tissue lesions and oral cancer. We wanted to see whether people at higher risk of these lesions were visiting the dentist annually.

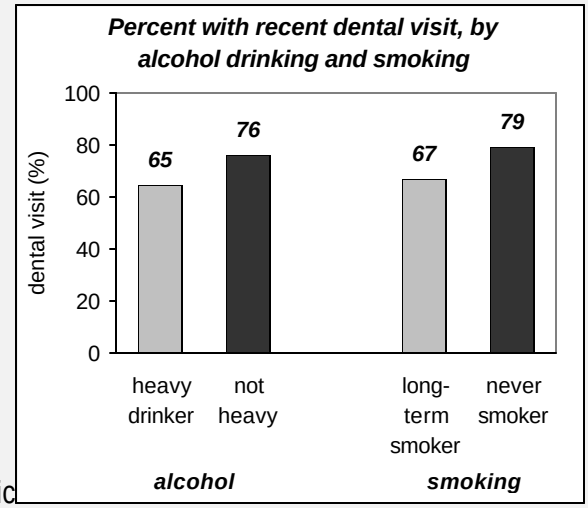


Figure 4b Source: Massachusetts BRFSS, 1999

We limited the analysis to Massachusetts adults ages 35 and older, based on the increased risk of oral diseases in this age group. Adults who consumed 60 or more alcoholic drinks in the previous month (heavy drinkers) were much less likely to have been to a dentist in the past year, compared to those who drank less or not at all (Figure 4b). Moreover, smokers who smoked cigarettes for ten or more years were also less likely to have seen a dentist than never smokers. Even adjusting for differences in income, education, age, tooth loss, and health care access, heavy drinkers and long-term smokers were less likely to have visited the dentist. Only 57% of people who were both heavy drinkers and long-term smokers visited the dentist in the past 12 months.

Missing Teeth

The percentage of adults with 6 or more missing teeth increases sharply with decreasing levels of education. However, persons with lower levels of education tend to be older than those with higher levels of education, which might explain the apparent relationship between education and tooth loss. We examined whether education was related to tooth loss among adults in the same age group. Within each age group, tooth loss was higher among less educated individuals. The increase in the percentage of adults with substantial tooth loss among those with less education is not, therefore, explained by the older age distribution of adults with lower levels of education. (Figure 4c).

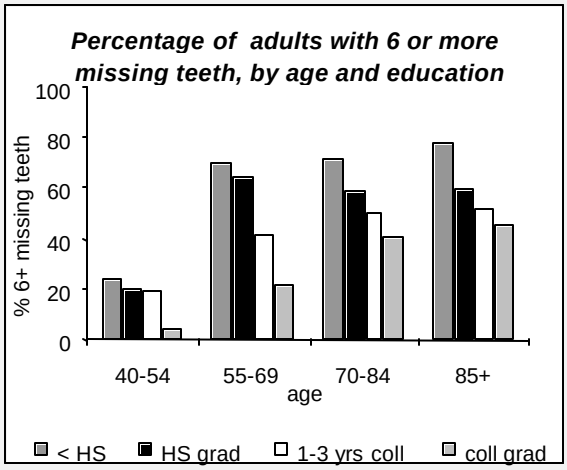


Figure 4c Source: Massachusetts BRFSS, 1999

SECTION 5. TOBACCO USE

All respondents were asked whether they had smoked 100 cigarettes in their lifetime AND whether they currently smoked now (defined as current smokers). All current smokers were asked the number of cigarettes they smoked per day. Heavy smoking was defined as smoking 21 or more cigarettes (1 pack or more) per day. All current smokers were asked if they had intentionally quit smoking for 1 day or longer in the past 12 months.

In 1999, 20% of Massachusetts adults reported currently smoking cigarettes. Current smoking was highest among adults 18-24 years of age. Adults with lower levels of income and education and adults who were unemployed or unable to work were much more likely to be current smokers. Over three percent of Massachusetts adults were heavy smokers. Men, Whites, adults with the lowest levels of education and income, and adults unable to work were more likely to be heavy smokers. Sixty-two percent of current smokers reported quitting for 1 day or longer in the past year. Students and Blacks and Hispanics were more likely to have quit for 1 day or longer in the past year.

TOBACCO USE AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	CURRENT SMOKER		HEAVY SMOKER		QUIT SMOKING FOR 1 DAY OR LONGER IN PAST YEAR*	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	20.2	18.9 - 21.5	3.1	2.6 - 3.6	61.9	58.5 - 65.4
GENDER						
MALE	20.6	18.4 - 22.7	4.1	3.3 - 5.1	62.7	57.4 - 68.0
FEMALE	19.9	18.3 - 21.5	2.1	1.6 - 2.7	61.2	56.7 - 65.7
AGE GROUP						
18 – 24	29.3	23.9 - 34.6	2.2	1.1 - 4.4	68.0	58.5 - 77.5
25 – 34	19.7	17.1 - 22.4	3.1	2.1 - 4.5	59.1	51.9 - 66.2
35 – 44	22.1	19.5 - 24.7	3.3	2.3 - 4.6	66.0	60.0 - 72.0
45 – 54	20.7	17.8 - 23.7	4.3	3.0 - 6.0	58.1	50.4 - 65.9
55 – 64	21.5	17.1 - 25.8	5.0	3.3 - 7.5	61.4	50.6 - 72.2
65 – 74	12.1	9.1 - 15.2	1.6	0.8 - 3.2	49.6	36.0 - 63.3
75 AND OLDER	9.5	6.2 - 12.7	0.9	0.3 - 2.7	†	
RACE/ETHNICITY						
WHITE, NON-HISPANIC	20.0	18.5 - 21.4	3.3	2.8 - 4.0	59.8	55.9 - 63.7
BLACK, NON-HISPANIC	25.1	19.5 - 30.7	0.5	0.2 - 1.5	72.5	61.5 - 83.6
HISPANIC	23.4	18.6 - 28.2	1.9	0.9 - 4.3	79.0	70.2 - 87.7
ASIAN	12.0	6.0 - 18.0	0.2	0.0 - 1.3	†	
EDUCATION						
< HIGH SCHOOL	32.6	26.2 - 39.0	6.3	4.1 - 9.5	66.7	56.4 - 77.2
HIGH SCHOOL	25.2	22.7 - 27.7	4.2	3.2 - 5.5	58.0	52.3 - 63.6
COLLEGE 1 - 3 YRS	22.4	19.7 - 25.2	3.6	2.6 - 5.0	61.9	55.5 - 68.4
COLLEGE 4+ YRS	12.4	10.7 - 14.0	1.1	0.7 - 1.8	65.5	58.9 - 72.1
HOUSEHOLD INCOME						
<$25,000	29.1	25.5 - 32.6	4.6	3.4 - 6.2	61.9	55.3 - 68.5
$25 - 34,999	25.6	21.3 - 29.8	4.7	3.0 - 7.3	60.7	51.4 - 70.0
$35 - 49,999	23.4	19.8 - 26.9	3.9	2.6 - 6.0	63.7	55.3 - 72.1
$50 - 74,999	17.3	14.2 - 20.4	2.8	1.7 - 4.5	61.3	51.7 - 70.8
$75,000+	11.5	9.2 - 13.9	1.5	0.8 - 2.7	62.2	51.9 - 72.5
EMPLOYMENT						
EMPLOYED	21.1	19.5 - 22.8	3.1	2.5 - 3.8	61.9	57.7 - 66.2
UNEMPLOYED	29.6	22.6 - 36.6	5.9	3.1 – 11.1	68.3	55.1 - 81.5
UNABLE TO WORK	40.2	31.9 - 48.4	8.7	5.3 - 14.1	60.4	49.1 - 71.6
HOMEMAKER	18.8	13.0 - 24.6	3.1	1.4 - 6.5	49.1	32.3 - 65.9
STUDENT	14.8	9.1 - 20.4	1.2	0.3 - 4.8	80.6	67.2 - 93.9
RETIRED	13.4	10.6 - 16.2	1.9	1.1 - 3.2	59.0	48.2 - 70.0

Table 5a

Source: Massachusetts BRFSS, 1999

* among current smokers

† insufficient sample size

- **Trends over time:**
  Since 1986, the percentage of adults who were current smokers has decreased over time. The percentage of heavy smokers has also decreased since 1986.

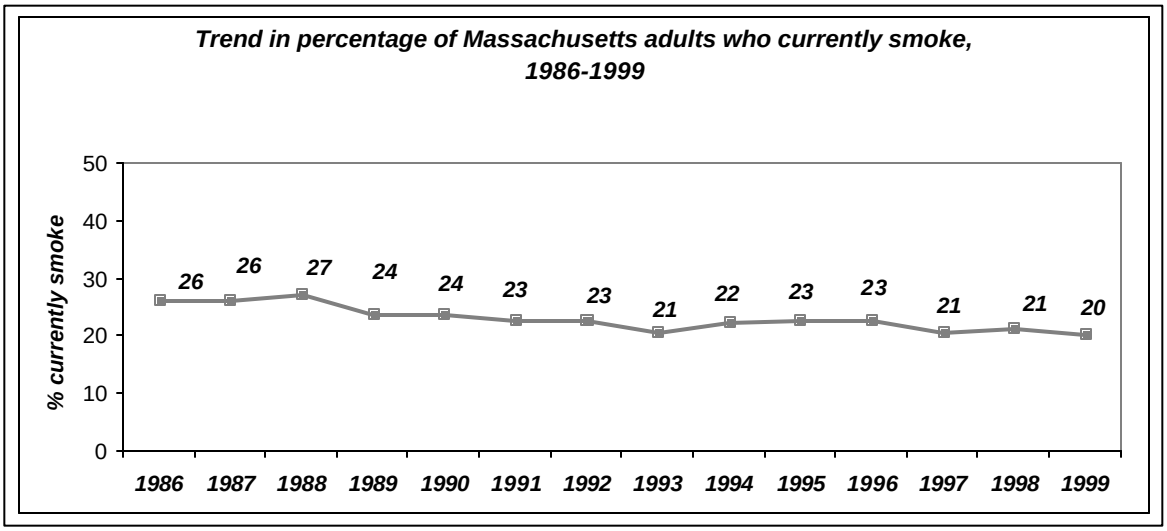


Figure 5a Source: Massachusetts BRFSS, 1986-1999

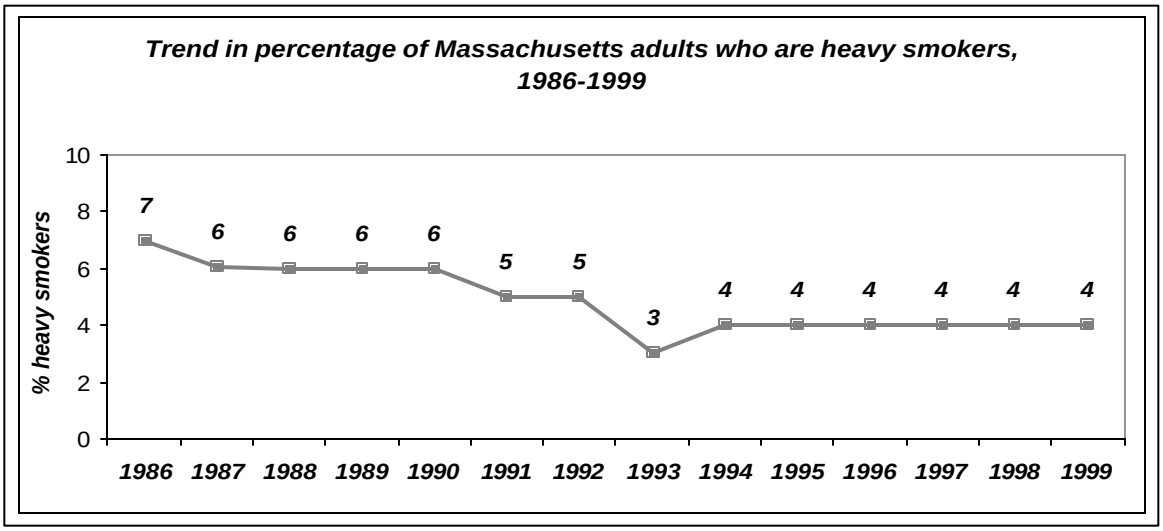


Figure 5b Source: Massachusetts BRFSS, 1986-1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Compared to other states in 1999, Massachusetts had the 7th lowest prevalence of current smokers. In 1999, Massachusetts has not yet attained the Healthy People 2010 Objective to reduce the percent of current adult smokers to no more than 12%.

TOBACCO USE	
	CURRENT SMOKERS
Massachusetts %	20.2%
US Median %	22.7%
Range of US States	13.7 - 31.5%
*Massachusetts Rank**	7th
Healthy People 2010	12%

*Based on lowest risk or healthiest behavior – 1st = best

Table 5b Source: US and MA BRFSS, 1999, HP 2010 Objectives

BOX 5: RESEARCH BRIEFS ON TOBACCO USE

Stop-smoking Products

In 1999, all respondents who indicated that they were current smokers or recent-quitters (in the past 3 years) were asked about their use of stop-smoking products. The stop-smoking products identified in the 1999 BRFSS survey include the nicotine patch, nicotine gum, nicotine inhaler, and pill (i.e. Zyban, Wellbutrin). Overall, 32% of current smokers and 3-year quitters reported using one of the above stop-smoking products. Figure 5c details the use of these products according to age and sex. Males and females age 35-64 reported the highest use. At younger and older (65+) ages, males were more likely to be using stop-smoking products to quit smoking. Among 3-year quitters, nearly 60% reported using one of these products when they quit.

Figure 5c Source: MA BRFSS, 1999

Satisfaction with Stop-Smoking Products

Current smokers and 3-year quitters who had used stop-smoking products were asked about their satisfaction with the stop-smoking product they used. Figure 5d shows the percentages of individuals who reported satisfaction with the various stop-smoking products. Respondents who reported using the patch were more satisfied than those who reported using the gum or the pill.

Figure 5d Source: MA BRFSS, 1999

Duration of Use

Respondents who reported using a stop-smoking product were then asked about the length of time that they used that product. Figure 5e displays the distribution of use for each of the products. Users of the gum were more likely to continue using beyond the 3-month mark compared to users of the pill and the patch.

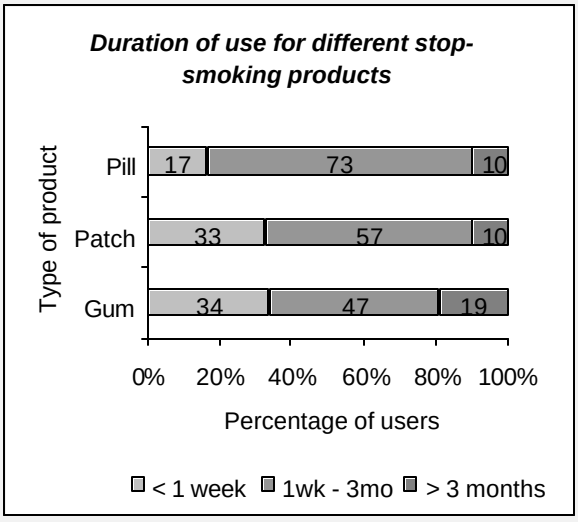


Figure 5e Source: MA BRFSS, 1999

SECTION 6. ENVIRONMENTAL TOBACCO SMOKE

All respondents were asked about attitudes and behaviors concerning exposure to environmental tobacco smoke. Respondents were asked whether they supported a ban on smoking in restaurants, and whether they lived in a home in which smoking is not allowed anywhere.

In 1999, 60% of Massachusetts adults reported supporting a ban on smoking in restaurants. Support was higher among adults ages 45 - 54, Hispanic adults, and adults with a college education. Support for a ban on smoking in restaurants increased with increasing household income. 62% of adults reported living in a home where smoking is not allowed. Hispanic adults, adults with a college education, and adults with the highest levels of income were more likely to live in a home where smoking is not allowed.

ENVIRONMENTAL TOBACCO SMOKE AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	SUPPORT BAN ON SMOKING IN RESTAURANTS		LIVE IN A HOUSEHOLD WHERE SMOKING IS NOT ALLOWED	
	%	95% CI	%	95% CI
OVERALL	59.8	58.2 - 61.4	61.6	60.0 - 63.2
GENDER				
MALE	58.4	55.8 - 61.0	61.4	58.7 - 64.0
FEMALE	61.1	59.1 - 63.0	61.8	59.8 - 63.7
AGE GROUP				
18 – 24	53.6	47.8 - 59.3	53.8	47.9 - 59.7
25 – 34	60.4	56.8 - 64.1	65.3	61.8 - 68.8
35 – 44	62.4	59.3 - 65.6	63.0	59.8 - 66.1
45 – 54	66.9	63.4 - 70.4	64.1	60.5 - 67.6
55 – 64	54.3	49.4 - 59.2	56.5	51.6 - 61.5
65 – 74	60.8	56.2 - 65.3	60.0	55.4 - 64.6
75 AND OLDER	52.8	47.5 - 58.1	64.0	58.8 - 69.2
RACE/ETHNICITY				
WHITE, NON-HISPANIC	58.6	56.8 - 60.3	60.4	58.6 - 62.2
BLACK, NON-HISPANIC	62.4	56.4 - 68.5	64.2	58.2 - 70.3
HISPANIC	71.2	65.0 - 77.1	70.4	64.2 - 76.5
ASIAN	62.9	52.6 - 73.1	67.2	56.9 - 77.6
EDUCATION				
< HIGH SCHOOL	61.2	55.5 - 67.0	56.3	50.1 - 62.7
HIGH SCHOOL	57.3	54.5 - 60.2	54.2	51.3 - 57.1
COLLEGE 1 - 3 YRS	53.6	50.1 - 57.1	58.1	54.6 - 61.7
COLLEGE 4+ YRS	65.3	62.8 - 67.8	70.4	68.0 - 72.7
HOUSEHOLD INCOME				
<$25,000	53.9	50.0 - 58.0	52.7	48.7 - 56.8
$25 - 34,999	55.2	50.3 - 60.2	56.7	51.7 - 61.6
$35 - 49,999	57.2	53.0 - 61.3	56.2	52.0 - 60.3
$50 - 74,999	63.6	59.4 - 67.7	62.9	58.8 - 67.1
$75,000+	66.9	63.3 - 70.5	72.6	69.1 - 76.1
EMPLOYMENT				
EMPLOYED	60.4	58.4 - 62.3	63.1	61.2 - 65.1
UNEMPLOYED	64.6	57.2 - 72.1	49.0	41.1 - 56.8
UNABLE TO WORK	53.9	45.2 - 62.6	53.7	45.0 - 62.5
HOMEMAKER	64.1	55.9 - 72.3	62.9	54.7 - 71.0
STUDENT	64.3	54.0 - 74.5	59.4	48.9 - 69.8
RETIRED	55.0	51.5 - 58.6	59.6	56.0 - 63.2

Table 6a

Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  Since 1992, there has been a substantial increase in the percentage of Massachusetts adults who believe smoking should not be allowed in restaurants and in the percentage of Massachusetts adults who live in a home in which smoking is not allowed.

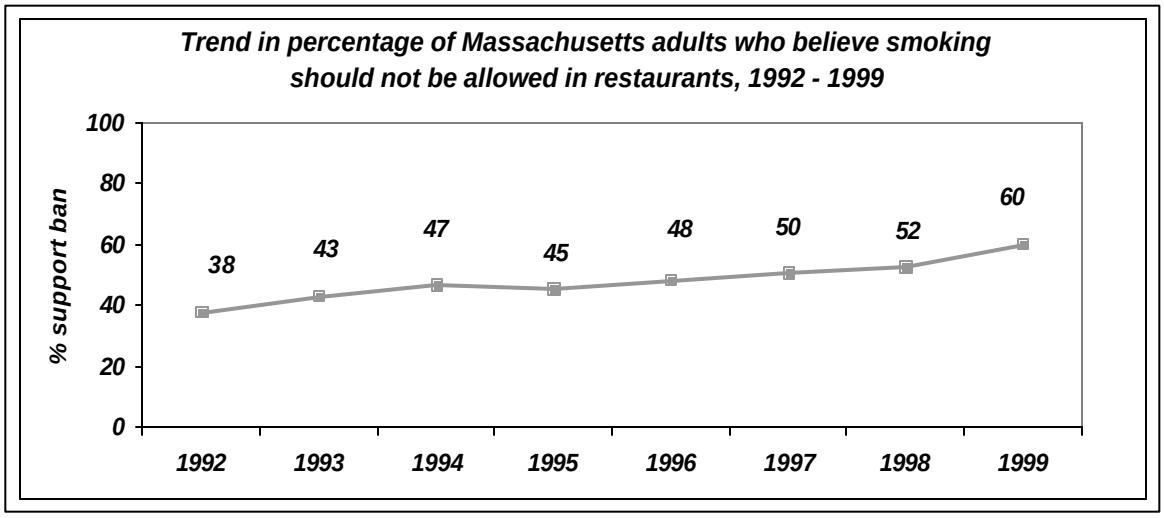


Figure 6a Source: Massachusetts BRFSS, 1992 - 1999

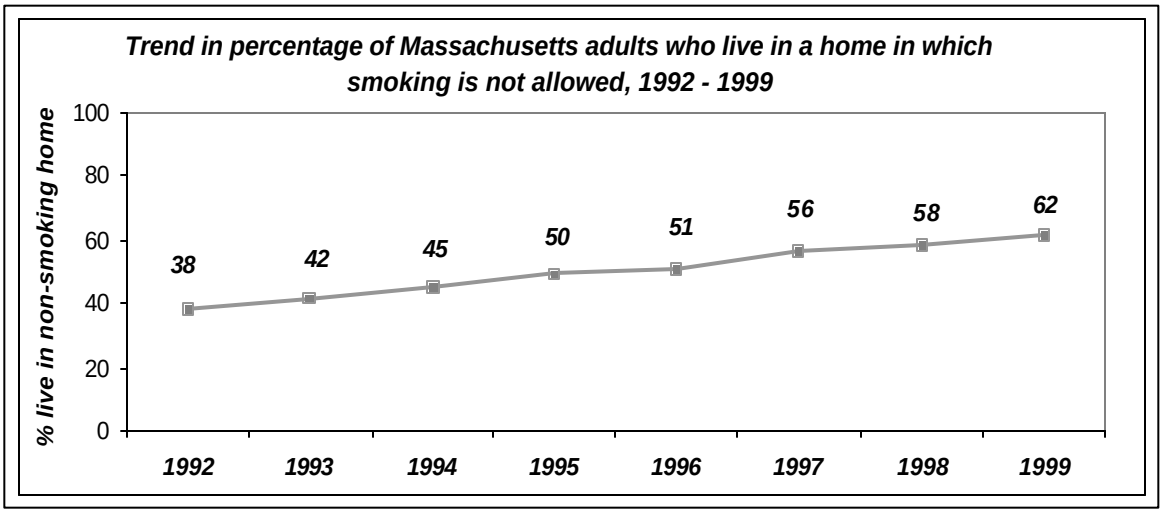


Figure 6b Source: Massachusetts BRFSS, 1992 - 1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Data not available

SECTION 7. ALCOHOL USE

All respondents were asked about their consumption of alcohol over the past month. Binge drinking was defined as consumption of 5 or more drinks at any one occasion in the past month, and heavy drinking as consumption of 60 or more drinks during the past month. Respondents were also asked whether drove after drinking too much over the past month.

In 1999, 18% of Massachusetts adults reported binge drinking in the past month. Men and younger adults were more likely to report binge drinking, while adults with lowest levels of education were less likely to do so. 4% of Massachusetts adults reported heavy drinking during the past month. Men and adults 18-24 years of age were much more likely to report heavy drinking. 3% of adults reported driving after drinking too much in the past month. Men were more likely to drive after drinking too much than women. Driving after drinking decreased with increasing age. Adults with the lowest levels of education were less likely to report driving after drinking in the past month.

ALCOHOL USE AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	BINGE DRINKING		HEAVY DRINKING		DRIVING AFTER DRINKING	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	17.5	16.2 - 18.8	4.4	3.7 - 5.1	3.1	2.5 - 3.7
GENDER						
MALE	25.2	23.0 - 27.5	8.0	6.7 - 9.4	4.8	3.9 - 5.9
FEMALE	10.6	9.3 - 11.9	1.1	0.7 - 1.7	1.5	1.0 - 2.1
AGE GROUP						
18 – 24	34.5	29.3 - 39.7	7.8	5.5 - 11.0	6.5	4.4 - 9.3
25 – 34	25.0	21.7 - 28.2	4.1	2.9 - 5.6	4.8	3.5 - 6.4
35 – 44	19.8	17.0 - 22.6	3.8	2.7 - 5.4	2.7	1.8 - 4.1
45 – 54	11.2	8.8 - 13.6	4.0	2.7 - 5.9	2.6	1.6 - 4.1
55 – 64	9.8	6.9 - 12.8	3.9	2.4 - 6.4	0.9	0.3 - 2.6
65 – 74	4.3	2.3 - 6.2	5.1	3.3 - 8.0	0.1	0.0 - 0.6
75 AND OLDER	2.4	0.8 - 4.1	1.1	0.4 - 2.7	0.7	0.2 - 2.8
RACE/ETHNICITY						
WHITE, NON-HISPANIC	18.0	16.5 - 19.4	4.6	3.9 - 5.4	3.0	2.5 - 3.7
BLACK, NON-HISPANIC	17.2	11.9 - 22.4	4.4	2.3 - 8.1	3.5	1.4 - 8.4
HISPANIC	14.3	10.3 - 18.4	2.5	1.1 - 5.3	2.7	1.3 - 5.5
ASIAN	17.5	8.3 - 26.8	1.9	0.5 - 7.2	4.1	1.4 - 11.4
EDUCATION						
< HIGH SCHOOL	10.2	7.0 - 13.4	2.8	1.5 - 5.3	1.1	0.4 - 2.7
HIGH SCHOOL	18.6	16.2 - 21.0	5.0	3.8 - 6.5	3.2	2.3 - 4.5
COLLEGE 1 - 3 YRS	17.9	15.2 - 20.6	5.6	4.2 - 7.4	3.2	2.2 - 4.5
COLLEGE 4+ YRS	18.1	16.0 - 20.3	3.5	2.6 - 4.5	3.3	2.4 - 4.4
HOUSEHOLD INCOME						
<$25,000	15.8	13.0 - 18.7	4.5	3.2 - 6.4	2.0	1.2 - 3.2
$25 - 34,999	25.5	20.6 - 30.4	4.6	2.9 - 7.2	4.3	2.6 - 7.2
$35 - 49,999	22.2	18.6 - 25.7	6.0	4.2 - 8.5	4.5	2.9 - 6.7
$50 - 74,999	21.3	17.5 - 25.2	3.3	2.2 - 5.1	4.4	2.8 - 6.6
$75,000+	18.8	15.9 - 21.8	6.5	4.8 - 8.8	3.6	2.4 - 5.3
EMPLOYMENT						
EMPLOYED	21.5	19.8 - 23.1	4.8	4.0 - 5.7	4.1	3.4 - 5.0
UNEMPLOYED	14.6	8.9 - 20.2	3.6	1.7 -7.5	0.3	0.1 - 1.0
UNABLE TO WORK	12.3	6.8 - 17.8	5.3	2.5 - 10.8	0.2	0.1 - 0.8
HOMEMAKER	8.6	4.0 - 13.2	0.1	0.0 - 0.4	2.3	0.8 - 6.9
STUDENT	27.2	18.3 - 36.1	6.4	3.3 - 12.1	3.6	1.5 - 8.1
RETIRED	3.6	2.2 - 5.0	3.2	2.1 - 4.9	0.2	0.0 - 1.2

Table 7a

Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  The percentage of adults who reported binge drinking in the past month and the percentage of adults who have driven after having too much to drink have both decreased since 1986.

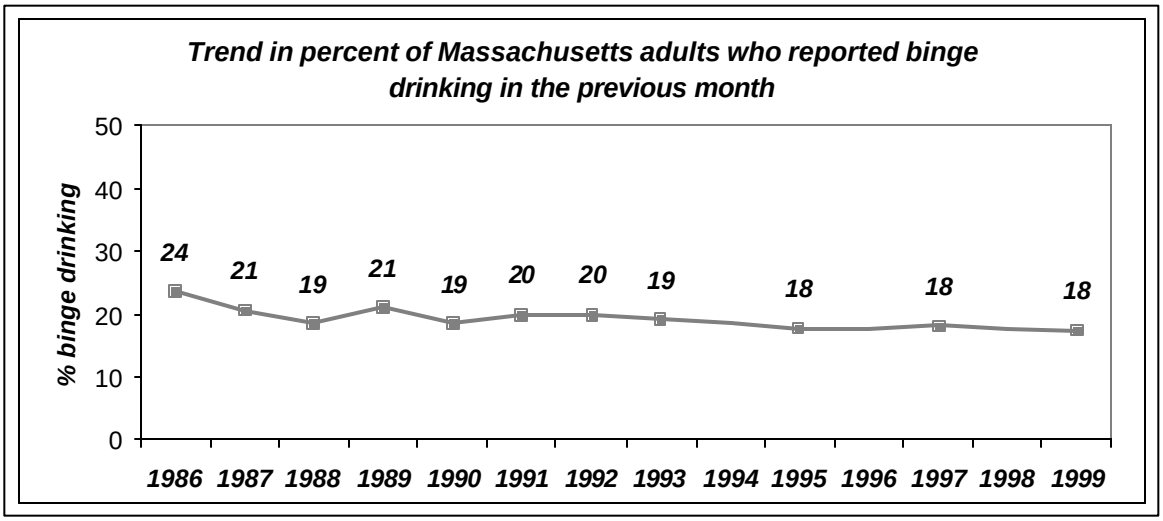


Figure 7a Source: Massachusetts BRFSS, 1986 - 1999

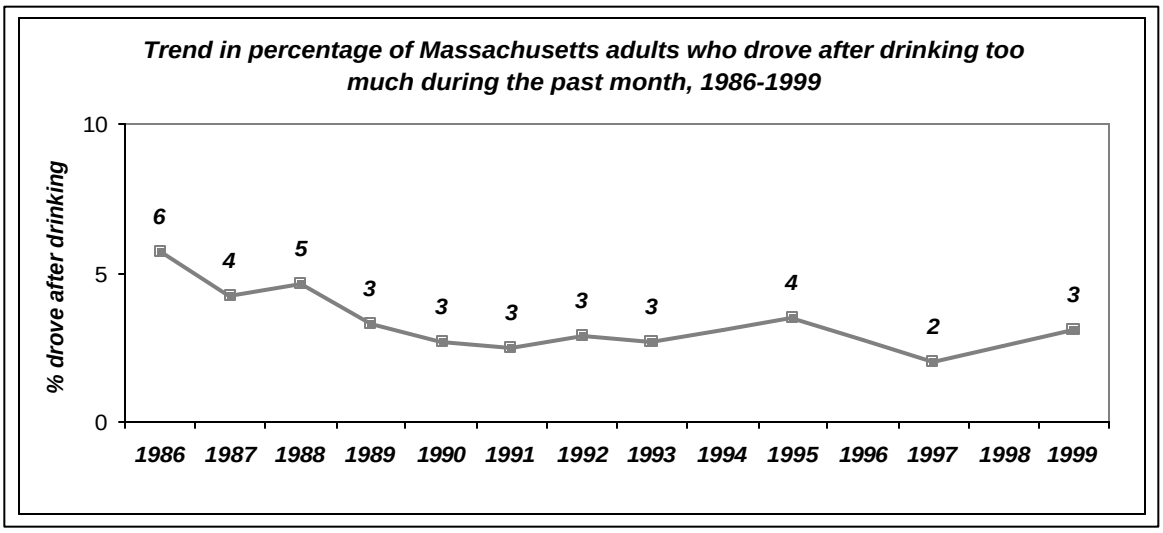


Figure 7b Source: Massachusetts BRFSS, 1986 - 1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Compared to Massachusetts in 1999, 39 states had fewer adults who engaged in binge drinking in the past month, 34 states had fewer adults who were heavy drinkers in the past month, and 34 states had fewer adults who drove after having too much to drink. Massachusetts has not yet attained the Healthy People 2010 goal of 6% prevalence of binge drinking.

ALCOHOL USE			
	BINGE DRINKING	HEAVY DRINKING	DRIVING AFTER DRINKING
Massachusetts %	17.5%	4.4%	3.1%
US Median %	14.9%	3.6%	2.4%
Range of US States	7.7 - 27.0%	1.7 - 7.4%	1.1 - 5.5%
*Massachusetts Rank**	40th	35th	35th

Healthy People 2010	6.0	NA	NA

*Based on lowest risk or healthiest behavior – 1st = best

Table 7b Source: US and MA BRFSS, 1999, HP 2010 Objectives

SECTION 8. WEIGHT CONTROL

All respondents self-reported height and weight. Using Body Mass Index (BMI), weight in kilograms divided by height in meters squared, we categorized all adults on weight status. Two BMI standards were used. Using standards adopted by Healthy People 2000 (HP 2000), men were overweight with BMI>27.8 and very overweight with BMI>31.1. Women were overweight with BMI>27.3 and very overweight with BMI>32.3. Using Healthy People 2010 (HP 2010) standards, both men and women were overweight with BMI>25, and very overweight with BMI >30.

In 1999, 27% of Massachusetts adults were overweight based on HP2000 standards. Men, blacks, adults unable to work, and those with the lowest levels of education were more likely to be overweight. The percentage of overweight adults increased until the age of 75, then decreased. 49% of adults were overweight according to HP2010 standards. The socio-demographic characteristics of adults overweight according to the newer standards were similar to the characteristics of those overweight according to the older standards. 14% of adults were very overweight according to HP2010 standards.

WEIGHT CONTROL AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	OVERWEIGHT (HP 2000 STANDARDS)		OVERWEIGHT (HP 2010 STANDARDS)		VERY OVERWEIGHT (HP 2010 STANDARDS)	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	26.7	25.2 - 28.1	49.4	47.7 - 51.1	13.8	12.7 - 15.0
GENDER						
MALE	30.8	28.4 - 33.1	61.8	59.0 - 64.5	15.6	13.8 - 17.4
FEMALE	22.7	21.0 - 24.4	37.5	35.5 - 39.5	12.1	10.7 - 13.5
AGE GROUP						
18 – 24	13.1	9.2 - 16.9	29.9	24.4 - 35.4	6.2	3.8 - 8.6
25 – 34	21.2	18.2 - 24.2	42.8	39.0 - 46.7	9.6	7.4 - 11.9
35 – 44	32.0	28.7 - 35.2	54.3	50.9 - 57.6	16.7	14.0 - 19.4
45 – 54	31.0	27.5 - 34.6	56.9	53.0 - 60.7	18.1	15.2 - 21.0
55 – 64	35.2	30.5 - 39.8	60.5	55.5 - 65.4	19.1	15.4 - 22.8
65 – 74	35.8	31.2 - 40.4	60.5	55.8 - 65.2	18.9	15.2 - 22.6
75 AND OLDER	22.2	17.7 - 26.7	46.7	41.3 - 52.3	10.2	6.9 - 13.5
RACE/ETHNICITY						
WHITE, NON-HISPANIC	26.3	24.7 - 27.9	49.2	47.3 - 51.1	13.4	12.2 - 14.7
BLACK, NON-HISPANIC	41.5	35.4 - 47.6	63.1	57.1 - 69.1	23.3	18.4 - 28.1
HISPANIC	31.3	26.2 - 36.4	57.3	51.4 - 63.1	16.7	12.7 - 20.6
ASIAN	14.2	6.7 - 21.8	28.8	19.2 - 38.5	9.7	2.9 - 16.5
EDUCATION						
< HIGH SCHOOL	33.3	28.0 - 38.5	54.9	48.6 - 61.3	17.3	13.7 - 21.0
HIGH SCHOOL	31.9	29.2 - 34.7	53.5	50.4 - 56.5	17.7	15.5 - 19.9
COLLEGE 1 - 3 YRS	27.7	24.5 - 30.8	49.4	45.8 - 53.1	14.7	12.2 - 17.2
COLLEGE 4+ YRS	20.9	18.7 - 23.0	45.3	42.6 - 48.0	9.8	8.1 - 11.4
HOUSEHOLD INCOME						
<$25,000	28.6	25.2 - 32.0	49.6	45.4 - 53.7	16.9	14.0 - 19.8
$25 - 34,999	28.3	23.4 - 33.1	49.5	44.4 - 54.6	14.5	10.3 - 18.7
$35 - 49,999	26.9	23.2 - 30.5	48.1	43.8 - 52.4	14.1	11.3 - 16.9
$50 - 74,999	27.0	23.3 - 30.8	51.0	46.6 - 55.3	14.5	11.5 - 17.4
$75,000+	25.9	22.5 - 29.4	49.9	45.9 - 53.8	11.4	9.1 - 13.8
EMPLOYMENT						
EMPLOYED	26.2	24.4 - 27.9	49.8	47.8 - 51.9	13.3	11.9 - 14.8
UNEMPLOYED	27.7	20.7 - 34.7	48.6	40.6 - 56.7	15.6	10.1 - 21.1
UNABLE TO WORK	41.5	32.8 - 50.3	66.5	56.4 - 76.6	25.6	18.6 - 32.6
HOMEMAKER	18.4	13.0 - 23.8	34.2	25.8 - 42.7	8.7	5.2 - 12.2
STUDENT	13.4	6.2 - 20.6	24.6	16.1 - 33.1	6.1	2.1 - 10.2
RETIRED	32.0	28.6 - 35.3	56.4	52.7 - 60.1	16.7	14.0 - 19.4

Table 8a

Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  There have been increases in the percentage of adults who are overweight and very overweight since 1986, based on either Healthy People 2000 standards or Healthy People 2010 standards.

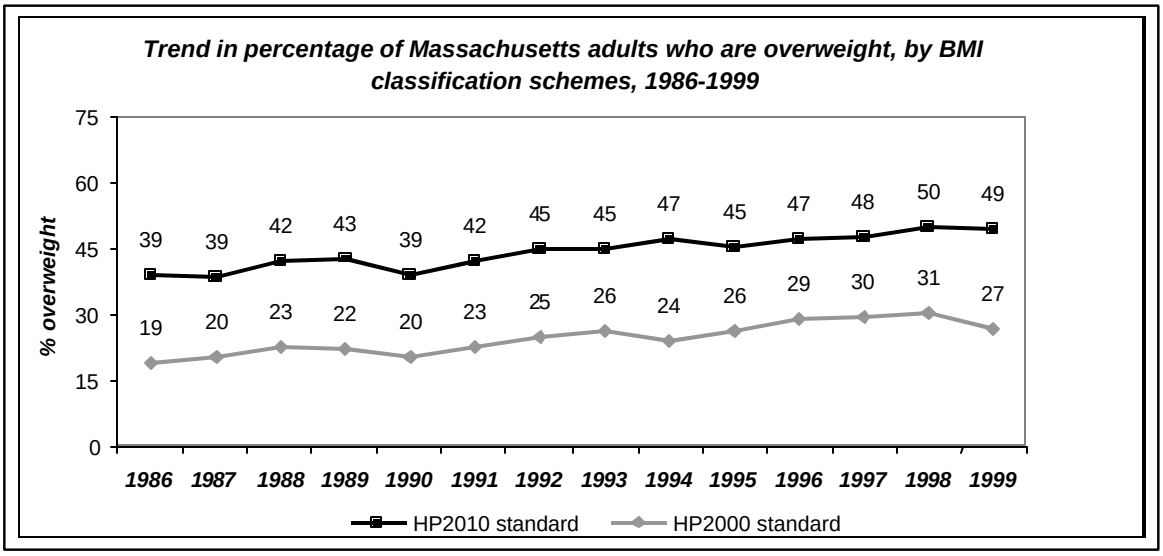


Figure 8a Source: Massachusetts BRFSS, 1986 - 1999

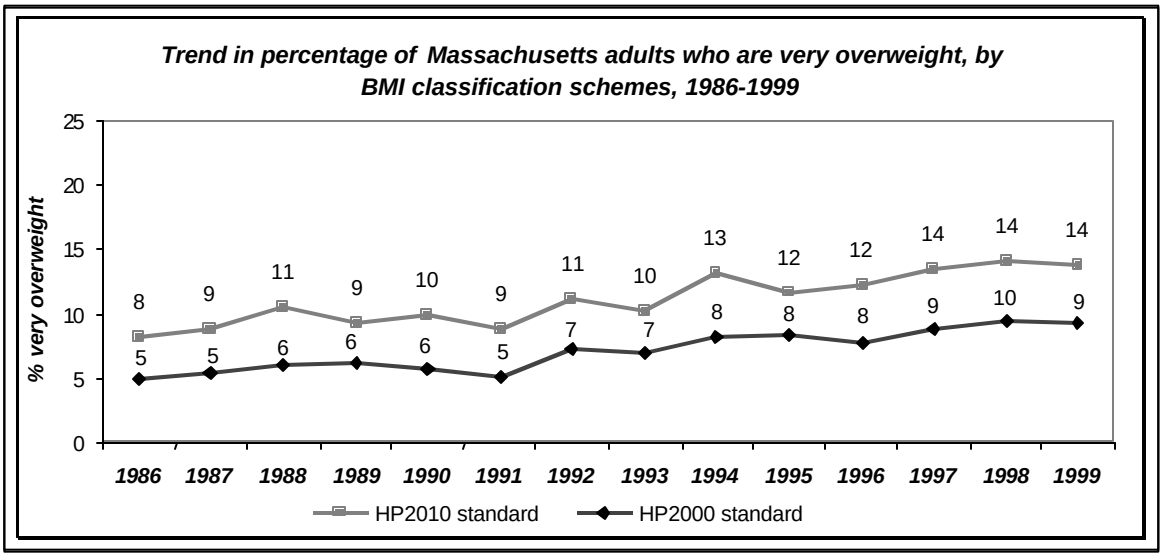


Figure 8b Source: Massachusetts BRFSS, 1986 - 1999

- **Comparison with National Data and Healthy People 2010 Objectives**: Compared to other states in 1999, Massachusetts had the 2nd lowest percentage of overweight adults by Healthy People 2000 standards. In 1999, Massachusetts met the Healthy People 2010 Objectives for the percentage of very overweight adults.

WEIGHT CONTROL		
	Overweight HP2000	**Very overweight HP2010**
Massachusetts %	26.7%	13.8%
US Median %	33.7%	NA
Range of US States	22.9 - 41.8%	NA

*Massachusetts Rank**	2nd	NA
Healthy People 2010	NA	15%

*Based on lowest risk or healthiest behavior – 1st = best.

Table 8b Source: US and MA BRFSS, 1999, HP 2010 Objectives

SECTION 9. HYPERTENSION AWARENESS

All respondents were asked when they last had their blood pressure checked by a health professional. Those who had ever had their blood pressure checked were asked whether they had ever been told they had high blood pressure.

In 1999, 96% of Massachusetts adults reported having their blood pressure checked in the past two years. Women were more likely to have ever had their blood pressure checked than men. There were no other demographic or socioeconomic differences in blood pressure check. 21% of Massachusetts adults have been told by a doctor that they had high blood pressure. Older adults and adults with lower levels of education and income were more likely to report high blood pressure. A low percentage of Asians reported high blood pressure.

HYPERTENSION AWARENESS AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	BLOOD PRESSURE CHECKED IN PAST TWO YEARS		HIGH BLOOD PRESSURE	
	%	95% CI	%	95% CI
OVERALL	96.0	95.2 - 96.6	21.1	19.7 - 22.5
GENDER				
MALE	94.1	92.8 - 95.2	22.0	19.8 - 24.2
FEMALE	97.6	96.8 - 98.2	20.3	18.7 - 21.8
AGE GROUP				
18 – 24	96.0	93.6 - 97.5	8.6	5.7 - 11.6
25 – 34	94.4	92.0 - 96.2	9.2	6.5 - 11.9
35 – 44	95.4	93.6 - 96.7	13.4	11.3 - 15.5
45 – 54	95.7	93.9 - 96.9	22.5	19.1 - 25.8
55 – 64	97.1	94.6 - 98.4	39.7	34.6 - 44.7
65 – 74	97.2	95.2 - 98.4	43.4	38.7 - 48.0
75 AND OLDER	98.6	97.6 - 99.5	42.0	36.7 - 47.3
RACE/ETHNICITY				
WHITE, NON-HISPANIC	96.3	95.5 - 97.0	21.5	20.0 - 22.9
BLACK, NON-HISPANIC	94.9	90.4 - 97.3	24.5	19.4 - 29.5
HISPANIC	93.4	90.3 - 95.6	23.0	16.9 - 29.2
ASIAN	93.1	86.5 - 96.6	3.6	1.4 - 5.8
EDUCATION				
< HIGH SCHOOL	94.1	91.5 - 95.9	30.4	24.6 - 36.2
HIGH SCHOOL	96.4	94.9 - 97.4	25.2	22.7 - 27.7
COLLEGE 1 - 3 YRS	96.8	95.4 - 97.7	20.1	17.5 - 22.8
COLLEGE 4+ YRS	95.6	94.1 - 96.7	16.6	14.6 - 18.6
HOUSEHOLD INCOME				
<$25,000	95.6	94.0 - 96.8	28.8	25.2 - 32.5
$25 – 34,999	95.2	92.6 - 96.9	19.2	15.5 - 22.9
$35 – 49,999	95.7	95.3 - 97.1	16.3	13.3 - 19.3
$50 – 74,999	96.5	94.7 - 97.6	18.4	14.4 - 22.3
$75,000+	95.5	92.5 - 97.3	17.6	14.8 - 20.4
EMPLOYMENT				
EMPLOYED	95.5	94.4 - 96.3	15.5	14.1 - 16.9
UNEMPLOYED	94.3	89.2 - 97.1	17.7	11.9 - 23.6
UNABLE TO WORK	97.7	94.3 - 99.1	38.4	29.1 - 47.7
HOMEMAKER	97.3	94.6 - 98.6	20.3	12.1 - 28.4
STUDENT	94.8	90.2 - 97.3	11.3	4.2 - 18.4
RETIRED	98.0	96.7 - 98.8	42.9	39.4 - 46.5

Table 9a

Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  The percentage of adults who had their blood pressure checked in the past two years has not changed since 1991. Among those who ever had their blood pressure checked, the percentage of adults with high blood pressure has not changed since 1986.

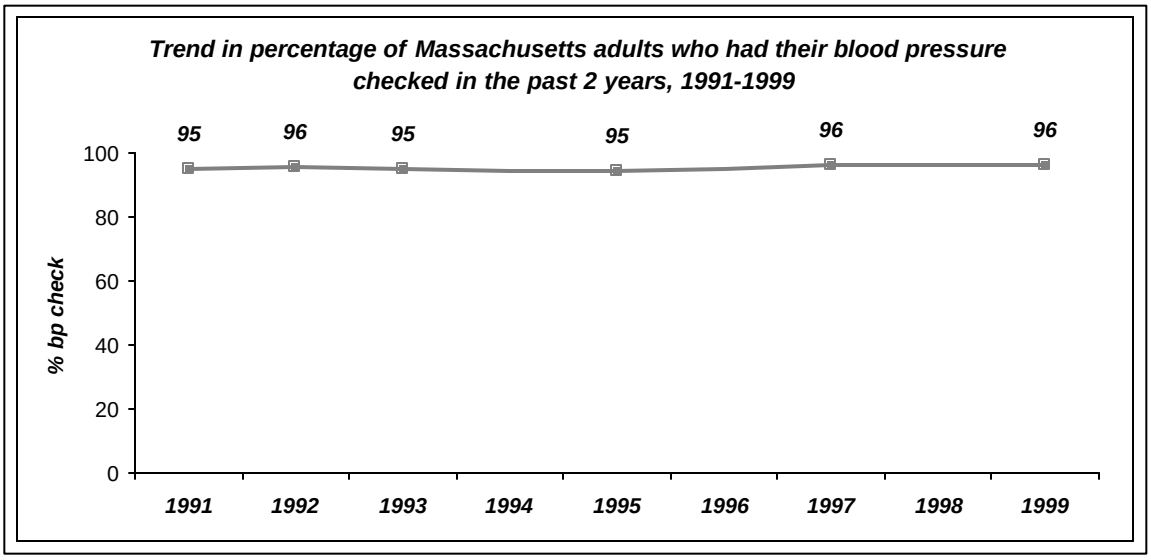


Figure 9a Source: Massachusetts BRFSS, 1991-1999

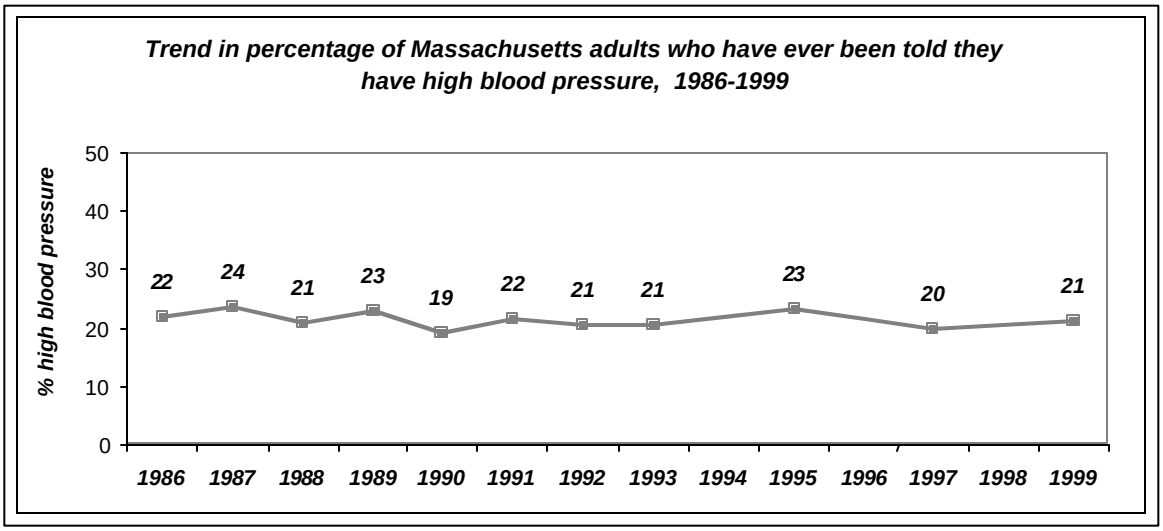


Figure 9b Source: Massachusetts BRFSS, 1986 - 1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Compared to other states, Massachusetts had the 9th highest percentage of adults who had their blood pressure checked in the past two years, and the 6th lowest percentage of adults with high blood pressure. Massachusetts did not reach the Healthy People 2010 objective for the percentage of adults with high blood pressure.

HYPERTENSION AWARENESS		
	BP CHECKED IN PAST TWO YRS	HIGH BLOOD PRESSURE
Massachusetts %	96.0%	21.1%
US Median %	94.5%	24.0%
Range of US States	91.3 - 96.9%	14.2 - 33.5%

*Massachusetts rank**	9th	6th
Healthy People 2010	NA	16%

*Based on lowest risk or healthiest behavior – 1st = best

Table 9b Source: US and MA BRFSS, 1999, HP 2010 Objectives

BOX 9: RESEARCH BRIEFS ON HYPERTENSION AWARENESS

Race, Education, and High Blood Pressure

Overall, the prevalence of high blood pressure decreases with increasing education. However, the relationship between education and high blood pressure differs according to race. Figure 9c shows the relationship between race, education, and high blood pressure. Among White adults, the percentage with high blood pressure decreases with increasing education. Among Black adults, the percentage with high blood pressure remains fairly constant across levels of education. This relationship holds after taking into account the different age distribution of the two groups.

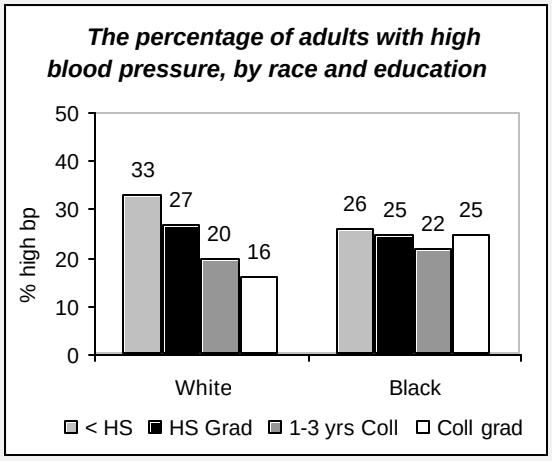


Figure 9c Source: Massachusetts BRFSS, 1999

High Blood Pressure and Health Behaviors/Conditions

High blood pressure increases the risk of coronary heart disease and stroke. Risk factors for hypertension include obesity, high alcohol intake, and smoking. High blood pressure can be lowered by changing these behaviors, and people diagnosed with high blood pressure are advised to lose weight, decrease alcohol intake, and quit smoking. Table 9c shows the prevalence of these health behaviors among adults who have ever been told by a doctor that they had hypertension and among those who have never been told they have hypertension, adjusting for the age and sex differences in the two groups. The prevalence of unhealthy behaviors is higher in persons ever diagnosed with high blood pressure compared to those never diagnosed with high blood pressure.

Health behaviors/conditions and High BP

	Ever high blood pressure	No high BP (age/sex standardized)
Current smoking	25%	20%
Heavy drinking	6%	4%
Overweight	61%	34%

Table 9c Source: Massachusetts BRFSS, 1999

High Blood Pressure and Smoking

Among current smokers, 49% of those diagnosed with high blood pressure reported quitting smoking for at least one day in the past year, compared to 60% of those without high blood pressure. The percentage of smokers with high blood pressure who tried to quit increased with increasing age high blood pressure who tried to quit in the past year decreased with increasing age. (Figure 9d) Among current smokers with high blood pressure, the percentage planning to quit in the next 30 days also increased with increasing age.

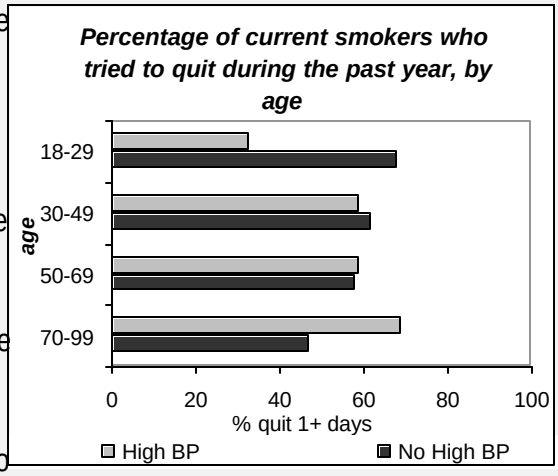


Figure 9d Source: Massachusetts BRFSS, 1999

SECTION 10. CHOLESTEROL AWARENESS

All respondents were asked when they last had their cholesterol checked by a health professional. Those who had ever had their cholesterol checked were also asked whether they had ever been told by a doctor that they had high cholesterol. In this analysis, we looked at the percentage of adults who had their cholesterol checked in the past 5 years, and, among those who ever had their cholesterol checked, the percentage with high cholesterol.

In 1999, 77% of Massachusetts adults reported having their cholesterol checked within the past five years. Women, White adults, and those with higher levels of income and education were more likely to have had their cholesterol checked. Cholesterol screening increased with increasing age until age 65, then decreased. Of those adults who had their cholesterol checked, 28% were told that their cholesterol level was high. The percentage of adults reporting high cholesterol increased with increasing age until age 75, then decreased. Adults with lower levels of education and income were more likely to report high cholesterol.

CHOLESTEROL AWARENESS AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	CHOLESTEROL CHECKED IN LAST 5 YEARS		HIGH CHOLESTEROL*	
	%	95% CI	%	95% CI
OVERALL	76.6	75.0 - 78.1	28.2	26.6 – 29.8
GENDER				
MALE	74.6	72.1 - 77.2	28.7	26.1 - 31.3
FEMALE	78.3	76.5 - 80.0	27.8	25.8 - 29.8
AGE GROUP				
18 – 24	52.8	46.6 - 59.0	7.9	4.5 - 11.3
25 – 34	67.1	63.6 - 70.7	16.7	12.9 - 20.5
35 – 44	78.8	75.8 - 81.9	21.7	18.8 - 24.6
45 – 54	84.7	82.0 - 87.4	31.8	28.1 - 35.5
55 – 64	90.1	87.2 - 92.9	44.1	38.8 - 49.4
65 – 74	89.3	86.4 - 92.3	47.9	43.0 - 52.9
75 AND OLDER	83.2	79.0 - 87.3	37.8	32.1 - 43.5
RACE/ETHNICITY				
WHITE, NON-HISPANIC	77.8	76.1 - 79.4	29.2	27.4 - 31.0
BLACK, NON-HISPANIC	72.7	66.9 - 78.5	25.1	19.1 - 31.2
HISPANIC	69.7	64.4 - 74.9	23.2	15.6 - 30.7
ASIAN	64.5	54.5 - 74.5	15.5	7.3 - 23.7
EDUCATION				
< HIGH SCHOOL	63.3	56.8 - 69.7	35.0	28.2 - 41.8
HIGH SCHOOL	75.0	72.4 - 77.7	29.9	26.9 - 32.8
COLLEGE 1 - 3 YRS	75.2	71.8 - 78.5	29.4	25.9 - 32.8
COLLEGE 4+ YRS	81.4	79.1 - 83.7	25.2	22.7 - 27.7
HOUSEHOLD INCOME				
<$25,000	71.0	67.3 - 74.7	36.0	31.5 - 40.5
$25 - 34,999	71.2	66.3 - 76.2	28.5	23.6 - 33.5
$35 - 49,999	76.3	72.6 - 80.0	26.9	22.8 - 30.9
$50 - 74,999	80.9	77.6 - 84.2	29.1	24.6 - 33.5
$75,000+	83.6	80.2 - 87.0	22.9	19.6 - 26.1
EMPLOYMENT				
EMPLOYED	75.3	73.4 - 77.2	24.4	22.5 - 26.3
UNEMPLOYED	68.4	60.8 - 76.0	25.8	17.7 - 33.8
UNABLE TO WORK	79.6	73.2 - 86.0	44.9	35.1 - 54.7
HOMEMAKER	74.3	67.4 - 81.1	25.5	15.6 - 35.4
STUDENT	60.7	49.6 - 71.7	5.9	1.9 - 9.9
RETIRED	87.9	85.5 - 90.3	44.0	40.2 - 47.9

Table 10a

Source: Massachusetts BRFSS, 1999

* Among those who ever had their cholesterol checked

- **Trends over time:**
  The percentage of adults who had their cholesterol checked in the past five years has increased since 1987. Among those who ever had their cholesterol checked, the percentage of adults with high cholesterol has increased since 1987.

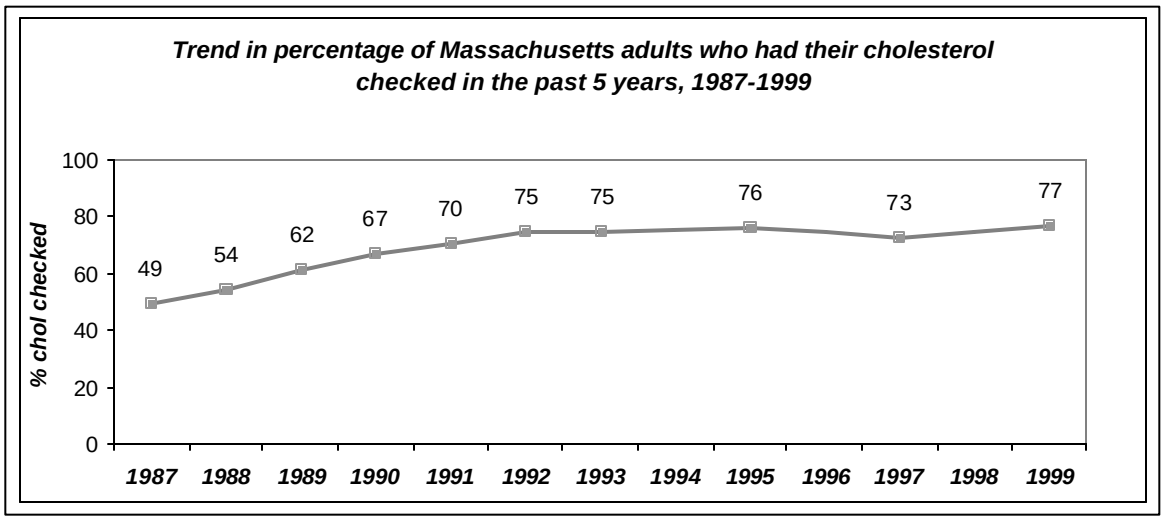


Figure 10a Source: Massachusetts BRFSS, 1987 - 1999

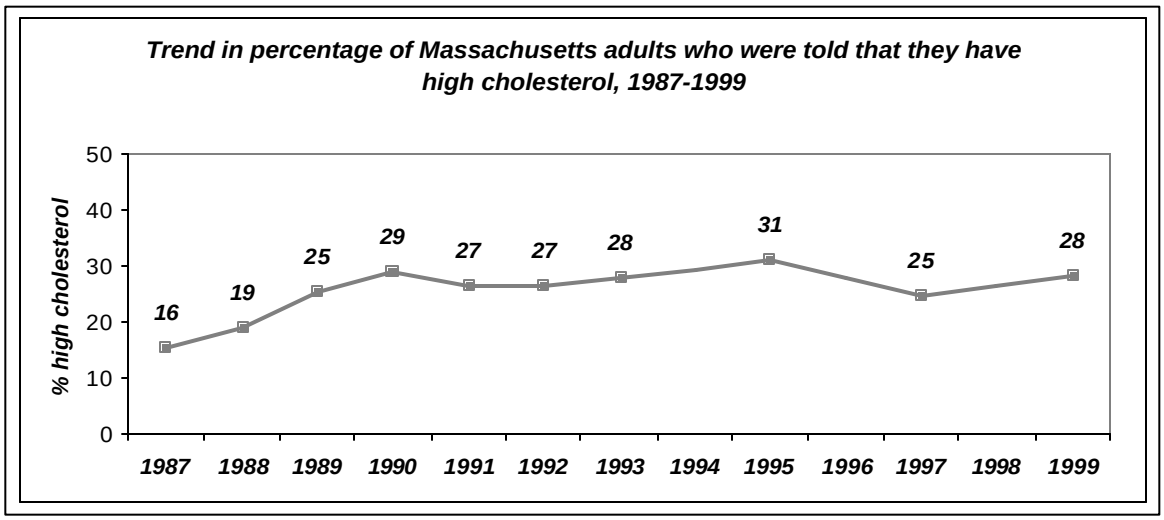


Figure 10b Source: Massachusetts BRFSS, 1987 - 1999

- **Comparison of National Data and HP 2010 Objectives:**
  Compared to other states in 1999, Massachusetts had the second highest percentage of adults who had their cholesterol checked in the past 5 years, and the 14th lowest percentage of adults with high cholesterol. In 1999, Massachusetts has not yet reached Healthy People 2010 objectives for the percentage of adults with high cholesterol.

CHOLESTEROL AWARENESS		
	CHOLESTEROL CHECKED IN PAST 5 YEARS	HIGH CHOLESTEROL
Massachusetts %	76.6%	28.2%
US Median %	69.1%	30.0%
Range of US States	59.8 - 76.6%	21.2 - 37.1%
*Massachusetts rank**	2nd	14th
Healthy People 2010	N/A	14%

*Based on lowest risk or healthiest behavior – 1st = best

Table 10b Source: US and MA BRFSS. 1999. HP 2010 Objectives

SECTION 11: SUNBURN

All respondents were asked about the number of sunburns that they had in the last 12 months resulting from exposure to the sun. Sunburn was defined as a small part of skin that turned red for 12 or more hours.

In 1999, 33% of Massachusetts adults reported one or more sunburns in the past year. The percentage of adults who reported one or more sunburn decreased with increasing age, and increased with increasing levels of education and income. 19% of Massachusetts residents experienced 2 or more sunburns in the past year. Demographic profile of adults who reported two or more sunburns in the past year was similar to adults who reported one or more sunburns in the past year.

SUNBURN AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	1 OR MORE SUNBURNS IN PAST YEAR		2 OR MORE SUNBURNS IN PAST YEAR	
	%	95% CI	%	95% CI
OVERALL	32.9	31.3 - 34.4	18.5	17.1 - 19.8
GENDER				
MALE	35.3	32.7 - 37.9	21.4	19.3 - 23.6
FEMALE	30.7	28.7 - 32.6	15.8	14.2 - 17.4
AGE GROUP				
18 - 24	48.8	43.0 - 54.6	30.0	24.6 - 35.5
25 - 34	44.9	41.1 - 48.7	26.1	22.9 - 29.3
35 - 44	41.4	38.2 - 44.7	23.4	20.6 - 26.2
45 - 54	30.0	26.6 - 33.4	16.1	13.3 - 18.9
55 - 64	18.6	14.9 - 22.3	9.9	7.1 - 12.8
65 - 74	10.2	7.3 - 13.1	3.2	1.5 - 5.0
75+	2.3	0.6 - 3.9	0.1	0 - 1.4
RACE/ETHNICITY				
WHITE, NON-HISPANIC	35.9	34.1 - 37.6	20.4	18.9 - 21.9
BLACK, NON-HISPANIC	5.7	2.9 - 8.4	2.1	0.3 - 4.0
HISPANIC	19.3	14.6 - 24.0	11.3	7.1 - 15.5
ASIAN	18.9	9.7 - 28.0	3.8	0.4 - 7.2
EDUCATION				
<HIGH SCHOOL	18.1	13.7 - 22.6	7.3	4.2 - 10.3
HIGH SCHOOL	29.4	26.7 - 32.2	16.8	14.5 - 19.1
COLLEGE 1 - 3 YRS	36.4	32.9 - 39.8	20.2	17.1 - 23.3
COLLEGE 4+ YRS	36.9	34.3 - 39.4	21.3	19.1 - 23.4
HOUSEHOLD INCOME				
<$25,000	26.8	22.8 - 30.7	15.3	11.6 - 19.0
$25 - 34,999	36.3	31.2 - 41.4	19.2	15.2 - 23.2
$35 - 49,999	34.4	30.2 - 38.6	18.9	15.6 - 22.2
$50 - 74,999	43.5	39.2 - 47.8	25.9	22.3 - 29.6
$75,000+	42.7	38.9 - 46.5	25.4	22.2 - 28.7
EMPLOYMENT				
EMPLOYED	39.8	37.9 - 41.8	22.6	20.9 - 24.3
UNEMPLOYED	31.1	23.5 - 38.7	17.1	10.7 - 23.4
UNABLE TO WORK	18.5	12.1 - 24.9	13.3	7.5 - 19.1
HOMEMAKER	25.7	19.2 - 32.1	15.1	9.7 - 20.5
STUDENT	47.0	36.5 - 57.5	26.9	17.0 - 36.7
RETIRED	8.2	6.2 - 10.1	2.9	1.6 - 4.1

Table 11a

Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  data not available

- **Comparison with National Data and Healthy People 2010 Objectives:**
  data not available

SECTION 12. FLU AND PNEUMONIA VACCINATIONS

All respondents were asked whether they had received a flu vaccination in the past 12 months and whether they had ever received a pneumonia vaccination. In this analysis, we examined the percentage of adults age 65 and older who had a flu vaccine in the past year, the percentage of adults age 50 - 64 who had a flu vaccine in the past year, and the percentage of adults age 65 and older who ever had a pneumonia vaccination.

In 1999, 68% of Massachusetts adults age 65 and older and 38% of adults age 50 - 64 received a flu vaccine within the last year. Among adults age 65 and older, vaccination in the past year was lower in Black adults and adults with lower levels of education. Among adults age 50 - 64, vaccination in the past year did not vary by any socioeconomic characteristic. 56% of adults age 65 and older reported ever receiving a pneumonia vaccination. Pneumonia vaccination increased with increasing levels of education.

FLU AND PNEUMONIA VACCINATIONS AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	FLU VACCINATION IN LAST YEAR, AGE 65 AND OLDER		FLU VACCINATION IN LAST YEAR, AGE 50-64		EVER HAD A PNEUMONIA VACCINATION, AGE 65 AND OLDER	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	67.7	64.4 - 71.1	38.3	34.7- 41.9	56.0	52.2 - 59.8
GENDER						
MALE	68.0	62.4 - 73.5	39.5	33.5 - 45.5	53.7	47.2 - 60.2
FEMALE	67.6	63.4 - 71.7	37.2	32.9 - 41.4	57.4	52.7 - 62.0
AGE GROUP						
65 – 74	65.9	61.4 - 70.4	--	--	54.5	49.5 - 59.5
75 +	69.4	63.7 - 75.1	--	--	61.4	54.9 - 68.0
RACE/ETHNICITY						
WHITE, NON-HISPANIC	68.7	65.3 - 72.1	39.1	35.2 - 43.0	56.8	52.9 - 60.7
BLACK, NON-HISPANIC	42.0	25.0 - 59.0	35.4	21.4 - 49.4	†	
HISPANIC	†		21.7	11.3 - 32.1	†	
ASIAN	†		†		†	
EDUCATION						
< HIGH SCHOOL	55.4	46.7 - 64.2	36.2	20.0 - 52.3	42.3	32.7 - 51.8
HIGH SCHOOL	65.2	59.7 - 70.7	38.2	31.8 - 44.7	54.8	48.6 - 61.0
COLLEGE 1 - 3 YRS	74.7	67.9 - 81.4	40.4	33.3 - 47.7	61.6	53.5 - 69.7
COLLEGE 4+ YRS	72.3	65.8 - 78.8	38.0	32.4 - 43.7	60.8	53.2 - 68.4
HOUSEHOLD INCOME						
<$25,000	66.9	60.9 - 72.8	44.6	32.5 - 56.7	58.2	51.4 - 65.0
$25 – 34,999	72.3	62.8 - 81.8	39.7	26.9 - 52.5	58.1	47.0 - 69.3
$35 – 49,999	68.6	57.5 - 79.7	33.2	24.8 - 41.7	53.2	40.5 - 65.9
$50 – 74,999	†		36.1	27.6 - 44.7	†	
$75,000+	†		38.0	30.6 - 45.4	†	
EMPLOYMENT						
EMPLOYED	59.2	48.8 - 69.5	37.4	33.2 - 41.6	37.8	26.7 - 49.0
UNEMPLOYED	†		23.0	7.4 - 38.5	†	
UNABLE TO WORK	†		37.3	23.2 - 51.3	†	
HOMEMAKER	†		32.3	16.8 - 47.8	†	
STUDENT	†		†		†	
RETIRED	69.5	65.8 - 73.0	49.2	38.5 - 60.0	58.8	54.7 - 62.9

Table 12a

Source: Massachusetts BRFSS, 1999
† insufficient sample size

- **Trends over time:**
  Since 1993, there has been an increase in the percentage of adults age 65 and older who reported receiving a flu vaccination in the past year, and an increase in the percentage of adults age 65 and older who reported ever receiving a pneumonia vaccination.

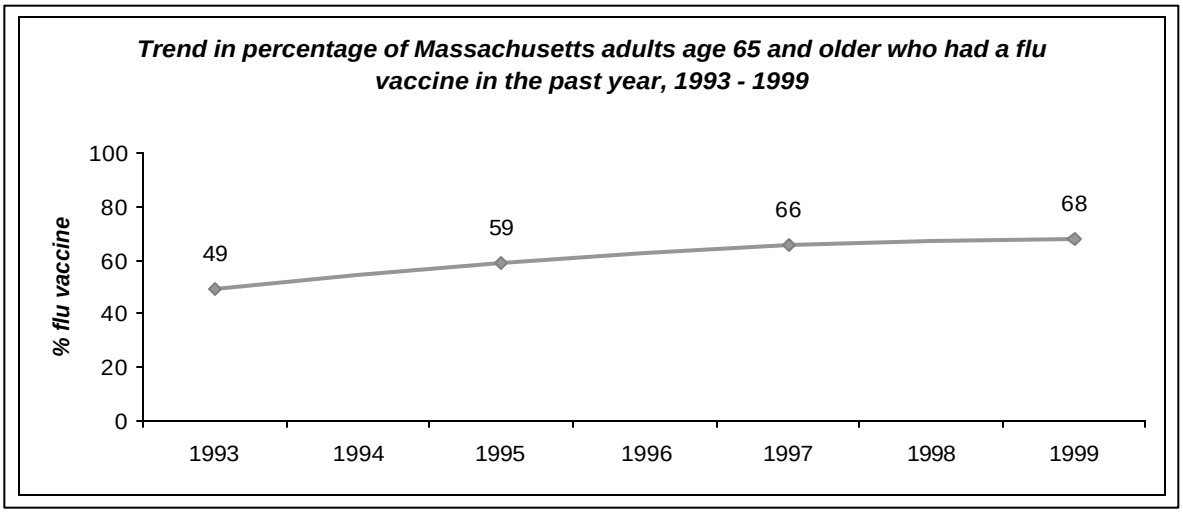


Figure 12a Source: Massachusetts BRFSS, 1993-1999

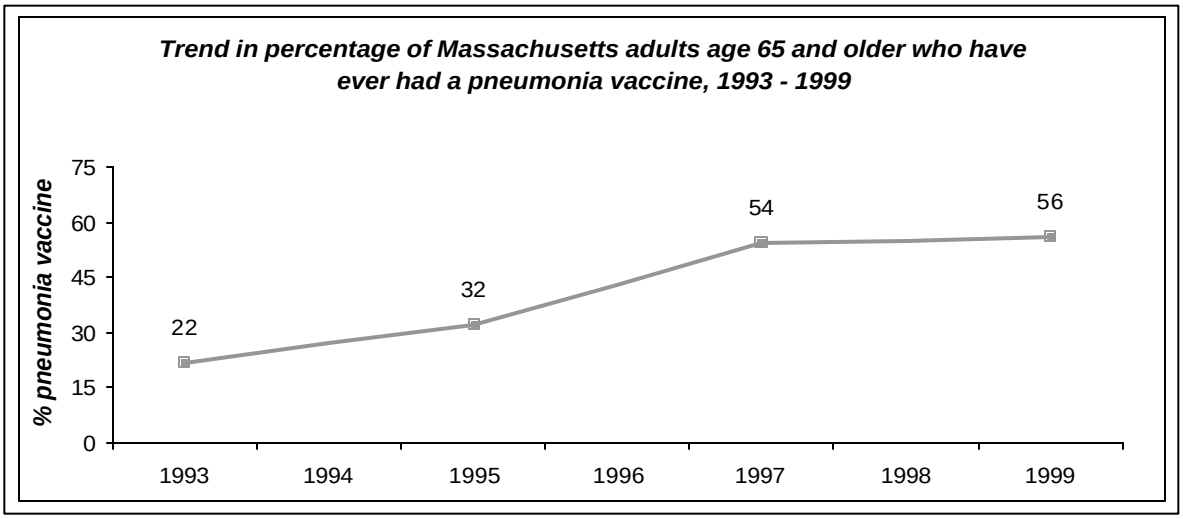


Figure 12b Source: Massachusetts BRFSS, 1993-1999

- **Comparison with National Data and Healthy People 2010 Objectives**
  Compared to other states in 1999, Massachusetts had the 23rd highest percentage of adults age 65 and older who received a flu vaccine in the past year, and the 17th highest percentage of adults age 65 and older who ever received a pneumonia vaccine. Massachusetts did not meet the Healthy People 2010 objective for percentage of older adults who received a flu vaccine in the past year or the percentage who ever received a pneumonia vaccine.

VACCINATIONS		
	FLU VACCINE IN PAST 12 MONTHS – AGE 65 AND OLDER	PNEUMONIA VACCINE EVER – AGE 65 AND OLDER
Massachusetts %	67.7%	56.0%
US Median %	67.4%	54.9%
Range of US States	11.8 - 43.0%	21.8 - 66.5%
*Massachusetts rank**	23rd	17th
Healthy People 2010 %	90%	90%

*Based on lowest risk or healthiest behavior – 1st = best

Table 12b Source: US and MA BRFSS, 1999, HP 2010 Objectives

BOX 12: RESEARCH BRIEFS ON FLU AND PNEUMONIA VACCINATIONS

Location of Flu Vaccine Administration

In 1999, respondents who received a flu vaccine in the past year were asked where they received the vaccine. Doctor's office or HMO was the most common location, followed by senior, recreation or community center, and health clinic. (Table 12c)

Location of flu vaccination administration, adults 50 years of age and over

Location	%
MD office, HMO	50
Health clinic	12
Hospital emergency room	6
Senior, recreation, or community center	15
Workplace	8
Supermarket, drugstore, health department, hospital emergency room, or other location	9

Table 12c Source: MA BRFSS, 1999

Figure 12c compares the location of flu vaccine administration in adults age 50-64 and adults age 65 and older. For both age groups, the most common location was doctors office or HMO. However, a higher proportion of adults age 50-64 received a flu vaccine at a health clinic or at work, while adults over the age of 65 were more likely to get the vaccine at a doctors office or a senior or community center. (Figure 12c)

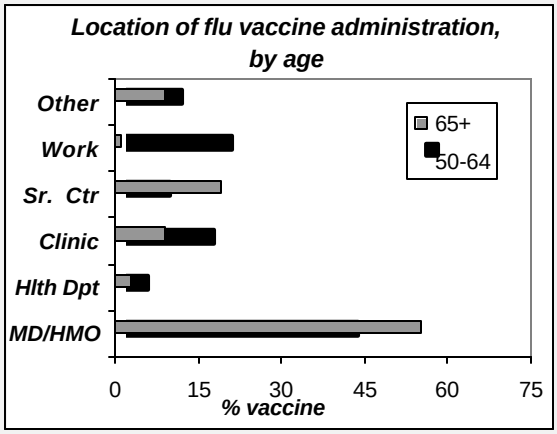


Figure 12 c Source: MA BRFSS, 1999

Location of flu vaccine also differed according to insurance status. Inadequate health insurance was defined as currently having no insurance, not having insurance at some time in the past year, or being unable to see a doctor due to cost. Adults age 50 and over with adequate insurance were more likely to get their vaccine at a doctors office, HMO, or health clinic, while those with inadequate insurance were more likely to get their vaccine at a health department or at work. (Figure 12d)

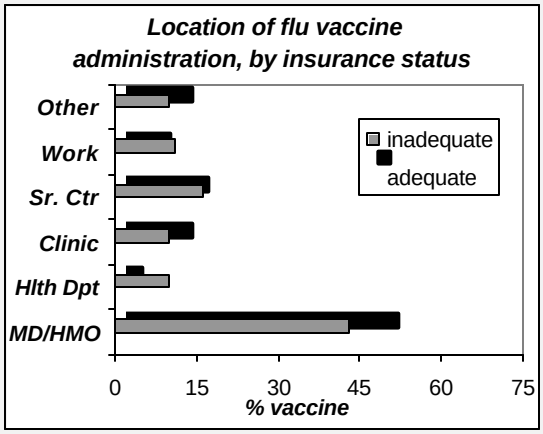


Figure 12 d Source: MA BRFSS, 1999

SECTION 13. COLORECTAL CANCER SCREENING

All respondents age 50 and older were asked about the frequency of colorectal cancer screening. In this analysis, we examined the percentage of adults age 50 and older who ever had a blood stool test, the percentage who had a blood stool test in the past two years, and the percentage who had a sigmoidoscopy or proctoscopy in the past five years.

In 1999, 44% of adults age 50 and older reported ever having a blood stool test. Adults with less than a high school education were less likely to have ever had a blood stool test. 35% of adults age 50 and older had a blood stool test in the past two years. Men were less likely to have had a recent blood stool test. 36% of adults age 50 and older had a sigmoidoscopy or proctoscopy in the past 5 years. Screening by sigmoidoscopy/proctoscopy increased with increasing levels of education.

COLORECTAL CANCER SCREENING AMONG MASSACHUSETTS ADULTS AGE 50 AND OLDER, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	EVER HAD A BLOOD STOOL TEST		BLOOD STOOL TEST IN PAST 2 YEARS		SIGMOIDOSCOPY OR PROCTOSCOPY IN PAST 5 YEARS	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	43.7	41.2 - 46.3	34.5	32.0 - 36.9	35.6	33.0 - 38.1
GENDER						
MALE	40.2	36.0 - 44.4	30.4	26.5 - 34.2	39.2	34.9 - 43.6
FEMALE	46.5	43.3 - 49.7	37.7	34.6 - 40.8	32.7	29.7 - 35.7
AGE GROUP						
50 – 59	38.9	34.8 - 43.0	29.9	26.1 - 33.7	30.9	26.8 - 35.0
60 – 69	47.9	42.9 - 52.8	38.4	33.6 - 43.1	38.9	33.9 - 43.9
70 – 79	47.1	41.8 - 52.3	38.8	33.6 - 44.0	39.8	34.6 - 45.0
80 AND OLDER	43.5	36.1 - 51.0	32.1	24.9 - 39.2	34.9	27.6 - 42.1
RACE/ETHNICITY						
WHITE, NON-HISPANIC	43.9	41.2 - 46.6	34.1	31.6 - 36.7	36.1	33.4 - 38.8
BLACK, NON-HISPANIC	48.3	36.6 - 60.0	45.6	33.8 - 57.4	29.5	20.0 - 39.0
HISPANIC	39.9	27.8 - 51.9	36.1	24.4 - 47.9	33.7	21.9 - 45.4
ASIAN	†		†		†	
EDUCATION						
< HIGH SCHOOL	31.5	24.6 - 38.4	27.8	21.2 - 34.4	28.7	20.5 - 36.8
HIGH SCHOOL	44.1	39.8 - 48.4	36.6	32.4 - 40.9	31.9	27.8 - 36.0
COLLEGE 1 - 3 YRS	45.9	40.6 - 51.2	35.8	30.7 - 40.9	35.3	30.2 - 40.5
COLLEGE 4+ YRS	46.1	41.5 - 50.7	33.8	29.4 - 38.1	41.9	37.3 - 46.6
HOUSEHOLD INCOME						
<$25,000	39.3	33.8 - 44.8	32.7	27.5 - 38.0	33.3	27.7 - 39.1
$25 - 34,999	51.8	43.6 - 60.1	38.9	30.9 - 47.0	30.8	23.1 - 38.5
$35 - 49,999	41.0	33.9 - 48.1	30.7	24.0 - 37.3	38.9	31.8 - 46.0
$50 - 74,999	43.6	35.8 - 51.4	35.1	27.5 - 42.7	32.9	25.4 - 40.3
$75,000+	43.8	36.9 - 50.7	33.0	26.5 - 39.5	40.5	33.7 - 47.3
EMPLOYMENT						
EMPLOYED	39.8	35.9 - 43.7	31.9	28.2 - 35.6	33.9	30.0 - 37.9
UNEMPLOYED	44.2	27.5 - 60.9	39.8	23.3 - 56.2	36.2	19.7 - 52.7
UNABLE TO WORK	31.7	20.4 - 43.0	28.2	17.5 - 39.0	23.8	13.8 - 33.8
HOMEMAKER	53.6	39.7 - 67.5	38.2	24.6 - 51.9	31.8	18.8 - 44.9
STUDENT	†		†		†	
RETIRED	47.6	43.9 - 51.3	36.8	33.2 - 40.4	38.7	35.0 - 42.5

Table 13a

Source: Massachusetts BRFSS, 1999

† Insufficient sample size

- **Trends over time:**
  The percentage of adults age 50 and over who have had a sigmoidoscopy or proctoscopy in the past 5 years has increased since 1993.

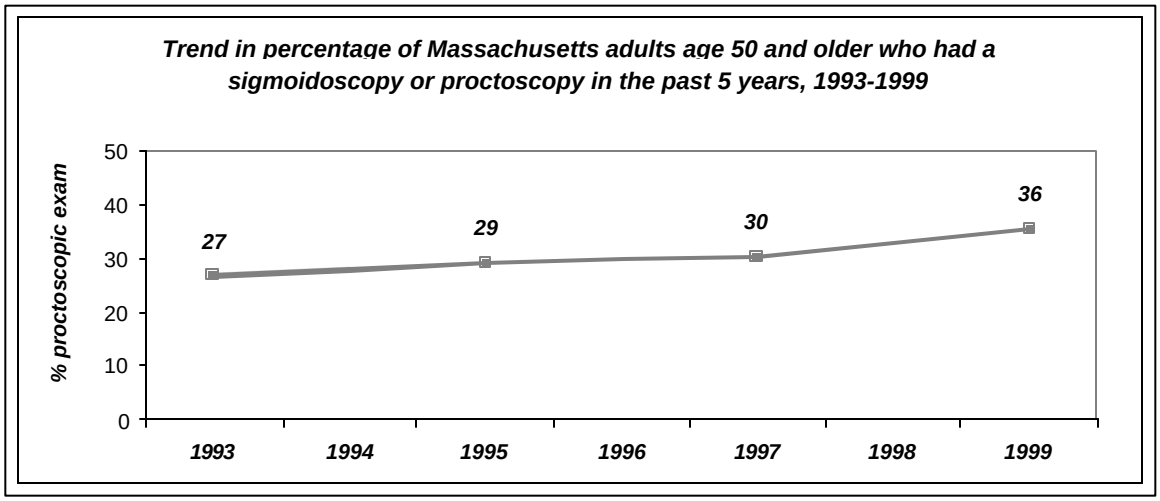


Figure 13a Source: Massachusetts BRFSS, 1993-1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Compared to other states in 1999, Massachusetts had the 9th highest percentage of adults age 50 and over who had a blood stool test in the past year. Massachusetts has not yet attained the Healthy People 2010 objective for the percentage of adults age 50 and over who had a blood stool test in the past two years.

BLOOD STOOL TEST IN PAST 2 YEARS	
Massachusetts %	34.5%
US Median %	26.2%
Range of US States	11.8 - 43.0%
*Massachusetts rank**	9th
Healthy People 2010 %	50%

*Based on lowest risk or healthiest behavior – 1st = best

Table 13b Source: US and MA BRFSS, 1999, HP 2010 Objectives

SECTION 14. BREAST CANCER SCREENING

All female respondents were asked about frequency of breast cancer screening. In this analysis, we looked at the percentage of women age 40 and older who ever had a mammogram, the percentage of women age 50 and older who had a mammogram in the past two years, and the percentage of all women who had a clinical breast exam (CBE) within the past two years.

In 1999, 91% of women age 40 and over reported ever having a mammogram. Women with higher levels of education and income were more likely to have ever had a mammogram. Hispanic women were less likely to have ever had a mammogram. 83% of women age 50 and over had a mammogram in the past two years. Recent mammogram use decreased with increasing age and increased with increasing income and education. 82% of all women report having a CBE in the past two years. Women younger than age 30 and older than age 80 were less likely to have had a CBE in the past two years. White and Black women, and women with higher levels of education and income were more likely to have had a CBE in the past two years.

BREAST CANCER SCREENING AMONG MASSACHUSETTS WOMEN, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	EVER HAD AMAMMOGRAM, AGE 40 AND OLDER		MAMMOGRAM IN PAST 2 YEARS, AGE 50 AND OLDER		CBE IN PAST 2 YEARS, ALL WOMEN	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	90.5	89.0 - 92.0	83.2	80.8 - 85.6	82.3	80.7 - 83.9
AGE GROUP						
18 – 29	- -		- -		72.7	66.4 - 78.9
30 – 39	- -		- -		83.0	79.7 - 86.4
40 – 49	86.7	83.8 - 89.5	- -		84.7	81.4 - 88.0
50 – 59	95.3	93.3 - 97.3	88.7	85.6 - 91.8	90.2	87.4 - 92.8
60 – 69	95.9	93.6 - 98.2	89.4	85.7 - 93.1	88.1	84.5 - 91.7
70 – 79	89.2	85.1 - 93.3	79.0	73.6 - 84.4	82.3	77.6 - 87.0
80 AND OLDER	83.4	76.6 - 90.1	63.5	54.9 - 72.2	68.7	62.4 - 75.0
RACE/ETHNICITY						
WHITE, NON-HISPANIC	90.9	89.4 - 92.5	83.1	80.6 - 85.6	84.0	82.3 - 85.7
BLACK, NON-HISPANIC	92.3	86.7 - 98.0	90.3	83.6 - 97.0	83.9	77.6 - 90.2
HISPANIC	81.7	73.5 - 89.8	87.8	78.3 - 97.2	69.1	62.6 - 75.7
ASIAN	†		†		63.0	48.4 - 77.6
EDUCATION						
< HIGH SCHOOL	81.7	75.8 - 87.7	68.7	60.6 - 76.8	68.4	62.1 - 74.7
HIGH SCHOOL	89.3	86.6 - 92.1	84.4	80.5 - 88.2	78.7	75.4 - 82.0
COLLEGE 1 - 3 YRS	92.6	90.0 - 95.2	86.2	81.7 - 90.7	86.0	83.3 - 88.8
COLLEGE 4+ YRS	92.6	90.2 - 94.9	85.9	81.6 - 90.2	86.1	83.7 - 88.4
HOUSEHOLD INCOME						
<$25,000	87.9	84.4 - 91.5	72.7	66.8 - 78.6	75.0	70.9 - 79.0
$25 - 34,999	88.6	83.2 - 94.1	84.5	76.6 - 92.3	81.5	76.7 - 86.3
$35 - 49,999	91.3	87.3 - 95.3	90.0	84.3 - 95.6	87.3	83.6 - 91.0
$50 - 74,999	91.8	87.9 - 95.7	88.8	82.4 - 95.2	88.2	84.5 - 91.8
$75,000+	95.2	92.4 - 97.9	91.8	86.5 - 97.2	89.2	85.4 - 92.9
EMPLOYMENT						
EMPLOYED	91.0	89.0 - 92.9	88.3	85.2 - 91.5	84.9	83.0 - 86.9
UNEMPLOYED	89.3	82.1 - 96.6	95.6	89.6 - 100	79.2	72.1 - 86.3
UNABLE TO WORK	88.2	81.8 - 94.5	81.8	70.8 - 92.7	81.9	73.6 - 90.3
HOMEMAKER	91.6	86.2 - 97.0	88.1	79.2 - 96.9	84.1	78.9 - 89.3
STUDENT	†		†		70.0	59.6 - 80.4
RETIRED	90.0	87.2 - 92.8	78.3	74.5 - 82.1	77.3	73.5 - 81.1

Table 14a

Source: Massachusetts BRFSS, 1999

† insufficient sample size

- **Trends over time:**
  The percentage of women age 40 and older who ever had a mammogram has increased steadily over time since 1987. In addition, there has been a significant increase since 1992 in the percentage of women age 50 and older who were screened in the previous two years. The percentage of women age 18 and older who had a clinical breast exam has increased slightly since 1992.

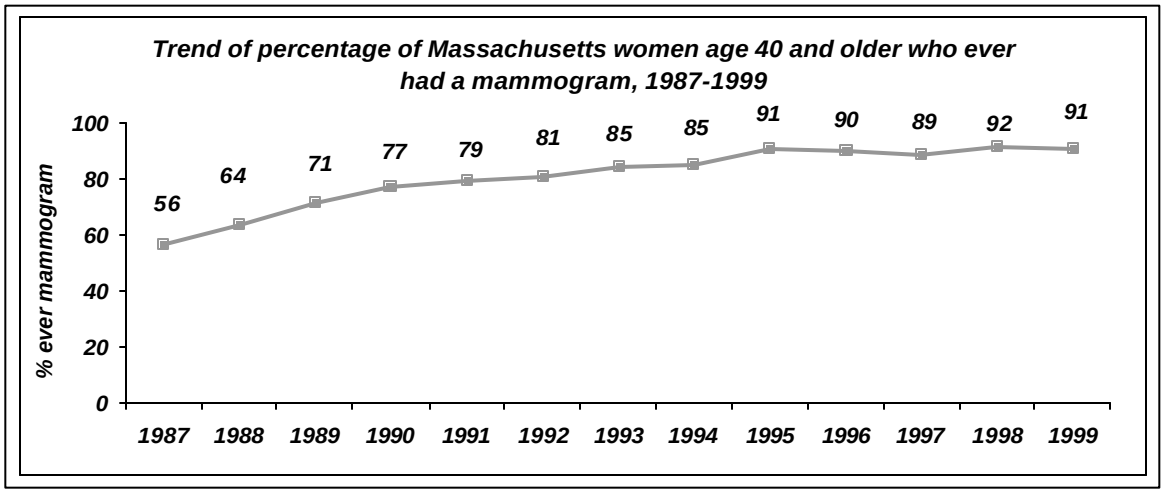


Figure 14a Source: Massachusetts BRFSS, 1987 - 1999

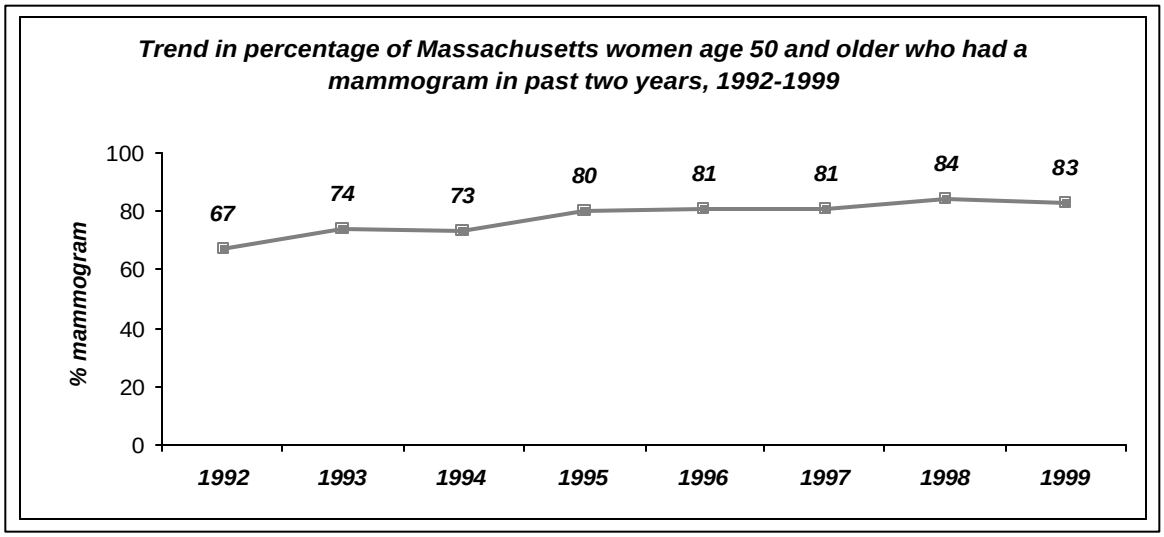


Figure 14b Source: Massachusetts BRFSS, 1992 - 1999

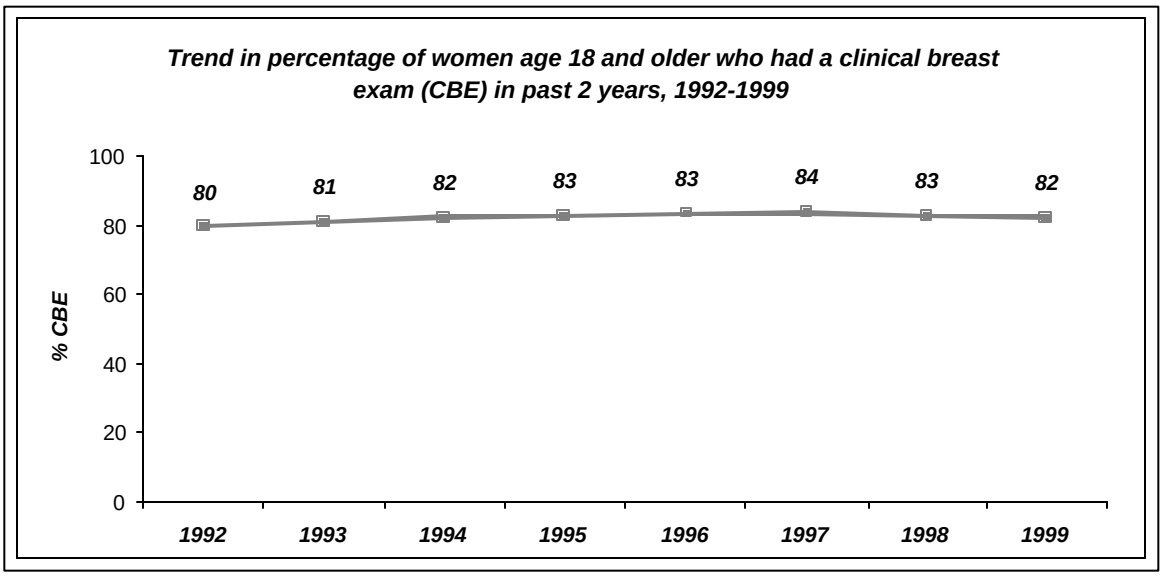


Figure 14c Source: Massachusetts BRFSS, 1992 - 1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Compared to other states in 1999, Massachusetts had the 6th highest percentage of women age 40 and older who ever had a mammogram, and the 9th highest percentage of women age 50 and older that had a mammogram within 2 years.

BREAST CANCER SCREENING		
	MAMMOGRAM EVER, AGE 40 AND OLDER	MAMMOGRAM IN 2 YRS, AGE 50 AND OLDER
Massachusetts %	90.5%	83.2%
US Median %	86.2%	75.5%
Range of US States	80.6 - 91.9%	67.1 - 86.1%
*Massachusetts rank**	6th	9th
Healthy People 2010	NA	NA

*Based on lowest risk or healthiest behavior – 1st = best

Table 14b Source: US and MA BRFSS, 1999

SECTION 15. CERVICAL CANCER SCREENING

All female respondents were asked about frequency of cervical cancer screening. In this analysis, we looked at the percentage of all women who ever had a Pap smear and, among women without a hysterectomy, the percentage who had a Pap smear in the past 3 years.

In 1999, 93% of women reported ever having a Pap smear. Women younger than age 25, women age 75 and older, and Hispanic and Asian women were less likely to have ever had a Pap smear. Screening increased with increasing income and education. 87% of women without hysterectomy received a pap smear in the past three years. Demographic characteristics of women who had a Pap smear in the past 3 years were similar to women who ever had a pap smear.

CERVICAL CANCER SCREENING AMONG MASSACHUSETTS WOMEN, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	EVER HAD A PAP SMEAR		PAP SMEAR IN PAST 3 YEARS *	
	%	95% CI	%	95% CI
OVERALL	93.3	92.2 - 94.4	87.4	85.8 - 88.9
AGE GROUP				
18 – 24	80.1	74.4 - 85.8	79.1	73.2 - 84.9
25 – 34	97.2	95.9 - 98.6	93.9	91.7 - 96.1
35 – 44	98.0	96.9 - 99.0	92.1	89.1 - 95.1
45 – 54	96.7	95.1 - 98.4	92.9	90.3 - 95.5
55 – 64	97.8	96.4 - 99.3	88.2	84.0 - 92.5
65 – 74	93.2	90.2 - 96.2	80.8	74.8 - 86.8
75 AND OLDER	82.6	77.5 - 87.6	60.1	51.7 - 68.5
RACE/ETHNICITY				
WHITE, NON-HISPANIC	94.6	93.5 - 95.6	88.0	86.4 - 89.7
BLACK, NON-HISPANIC	92.7	87.0 - 98.4	91.8	85.5 - 98.0
HISPANIC	85.2	80.0 - 90.4	84.1	78.4 - 89.8
ASIAN	74.1	60.7 - 87.5	68.0	53.6 - 82.4
EDUCATION				
< HIGH SCHOOL	86.0	80.9 - 91.0	77.6	70.9 - 84.3
HIGH SCHOOL	90.0	87.5 - 92.4	81.8	78.3 - 85.4
COLLEGE 1 - 3 YRS	95.2	93.3 - 97.1	90.0	87.2 - 92.7
COLLEGE 4+ YRS	96.5	95.2 - 97.7	91.9	90.0 - 93.8
HOUSEHOLD INCOME				
<$25,000	89.4	86.3 - 92.4	79.9	75.7 - 84.1
$25 - 34,999	93.5	90.3 - 96.6	87.6	83.2 - 92.1
$35 - 49,999	96.4	94.0 - 98.8	89.9	86.0 - 93.7
$50 - 74,999	97.4	95.9 - 99.0	94.3	91.7 - 96.9
$75,000+	98.7	97.1 -100	93.8	90.1 - 97.4
EMPLOYMENT				
EMPLOYED	96.2	95.1 - 97.3	91.7	90.1 - 93.4
UNEMPLOYED	88.1	80.6 - 95.5	84.9	76.6 - 93.2
UNABLE TO WORK	94.4	90.3 - 98.4	88.1	81.0 - 95.3
HOMEMAKER	96.0	93.3 - 98.6	91.5	87.1 - 96.0
STUDENT	72.4	62.0 - 82.8	70.6	60.0 - 81.2
RETIRED	89.4	86.6 - 92.1	72.6	67.6 - 77.6

Table 15a

Source: Massachusetts BRFSS, 1999

* among women without hysterectomy

- **Trends over time:**
  The percentage of women age 18 and older who have ever had a Pap smear has not changed since 1991. Among women without a hysterectomy, there has been a slight increase in the percentage screened within 3 years since 1992.

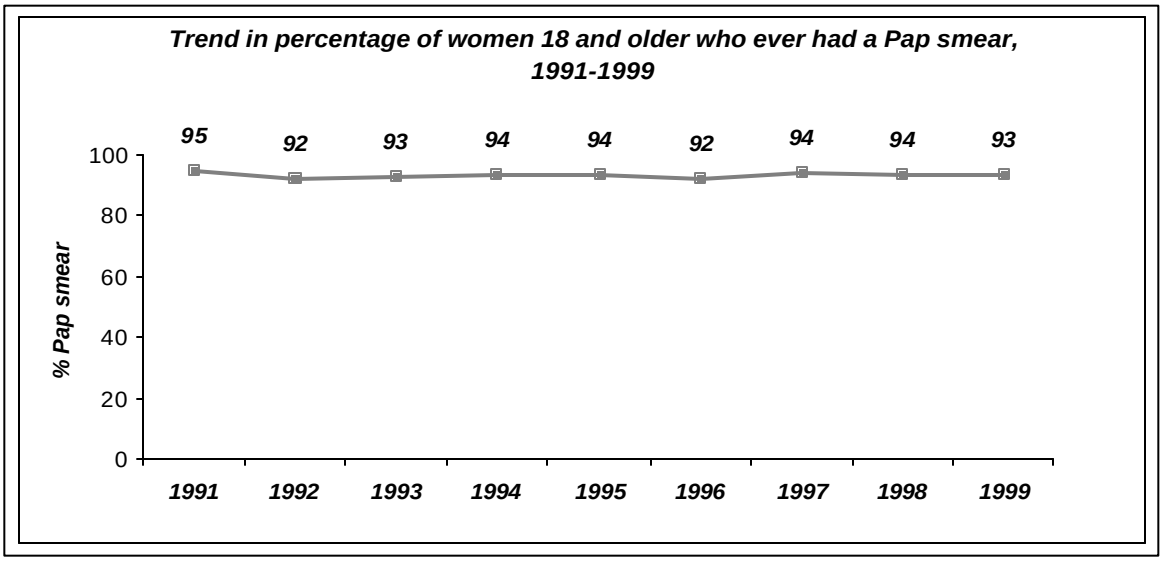


Figure 15a Source: Massachusetts BRFSS, 1991 - 1999

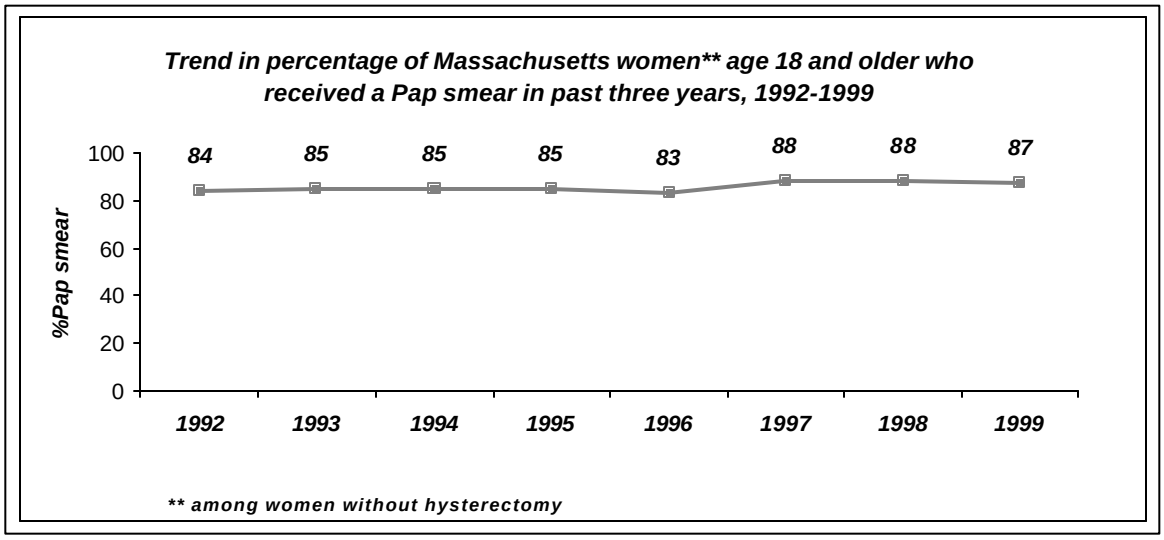


Figure 15b Source: Massachusetts BRFSS, 1992 - 1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Compared to other states, Massachusetts had the 41st highest percentage of women who ever had a Pap smear and the 17th highest percentage who had a Pap smear in the past 3 years.* Massachusetts has not yet attained the Healthy People 2010 Objectives for the percentage of women who ever had a pap smear.

	WOMEN'S HEALTH	
	PAP SMEAR EVER	PAP SMEAR IN 3 YRS *
Massachusetts %	93.3%	87.4%
US Median %	95.1%	85.4%
Range of US States	85.4 - 97.6%	73.1 - 90.1%
*Massachusetts rank***	41st	17th
Healthy People 2010	97%	N/A

*among women without hysterectomy

Table 15b Source: US and MA BRFSS. 1999. HP 2010 Objectives

**Based on lowest risk or healthiest behavior – 1st = best.

SECTION 16. PROSTATE CANCER SCREENING

All male respondents age 50 and older were asked about frequency of prostate cancer screening. In this analysis, we looked at the percentage of men age 50 and older who ever had a Prostate Specific Antigen blood test (PSA), the percentage of men age 50 and older who had a PSA in the past year, and the percentage of men age 50 and older who had a digital rectal exam (DRE) in the past year.

In 1999, 71% of men age 50 and older reported ever having a PSA test. 59% had a PSA test in the past year. PSA testing, both ever and in the past year, was higher among men age 60-79 and among men with higher levels of education and income. 57% of men age 50 and older had DRE within the past year. Recent DRE testing was higher among men age 50-69, and lower among Hispanic men.

PROSTATE CANCER SCREENING AMONG MASSACHUSETTS MEN AGE 50 AND OVER, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	EVER HAD PSA TEST		PSA TEST IN PAST YEAR		DRE IN PAST YEAR	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	71.1	67.0 - 75.2	59.3	54.9 - 63.6	57.4	53.1 - 61.7
AGE GROUP						
50 – 59	61.3	53.9 - 68.6	50.1	42.7 - 57.4	50.5	43.3 - 57.7
60 – 69	81.7	75.8 - 87.6	71.9	64.9 - 78.9	66.5	59.2 - 73.7
70 – 79	79.0	72.0 - 86.0	65.6	57.3 - 73.9	64.6	56.3 - 72.9
80 AND OLDER	59.2	45.4 - 72.9	41.1	27.2 - 54.9	42.7	29.4 - 55.9
RACE/ETHNICITY						
WHITE, NON-HISPANIC	71.8	67.5 - 76.1	60.1	55.5 - 64.7	58.0	53.5 - 62.5
BLACK, NON-HISPANIC	72.9	55.3 - 90.5	56.9	37.6 - 76.2	61.4	43.2 - 79.7
HISPANIC	58.4	38.1 - 78.8	48.1	27.2 - 68.9	31.5	13.3 - 49.7
ASIAN	†		†		†	
EDUCATION						
< HIGH SCHOOL	51.6	36.3 - 66.9	41.8	27.8 - 55.9	45.3	29.8 - 60.8
HIGH SCHOOL	70.9	64.0 - 77.9	60.7	53.1 - 68.3	57.8	50.3 - 65.3
COLLEGE 1 - 3 YRS	73.5	65.1 - 81.8	56.2	46.6 - 65.7	60.3	51.4 - 69.3
COLLEGE 4+ YRS	75.6	69.8 - 81.5	64.8	58.2 - 71.4	59.4	52.8 - 66.1
HOUSEHOLD INCOME						
<$25,000	65.1	54.3 - 75.9	53.0	42.6 - 63.5	53.4	42.8 - 63.9
$25 - 34,999	69.3	57.3 - 81.2	55.4	42.6 - 68.2	61.5	49.3 - 73.7
$35 - 49,999	73.7	63.6 - 83.8	64.1	53.3 - 74.9	59.6	48.8 - 70.3
$50 - 74,999	77.4	67.3 - 87.5	66.1	54.3 - 77.8	60.7	49.0 - 72.5
$75,000+	77.9	69.4 - 86.3	65.7	56.0 - 75.4	55.9	46.1 - 65.6
EMPLOYMENT						
EMPLOYED	69.2	63.2 - 75.1	57.6	51.1 - 64.2	57.8	51.6 - 63.9
UNEMPLOYED	†		†		†	
UNABLE TO WORK	43.7	21.1 - 66.2	34.6	14.4 - 54.8	41.8	21.1 - 62.6
HOMEMAKER	†		†		†	
STUDENT	†		†		†	
RETIRED	77.2	72.2 - 82.2	64.9	59.2 - 70.6	60.3	54.3 - 66.2

Table 16a

Source: Massachusetts BRFSS, 1999

† Insufficient sample size

- **Trends over time:**
  data not available

- **Comparison with National Data and Healthy People 2010 Objectives:**
  data not available

SECTION 17. DIABETES

All respondents were asked if they had ever been told by a doctor that they have diabetes. Women who had diabetes only during pregnancy were considered to not have diabetes. All respondents were also asked whether they had ever heard, read, or seen information about the importance of controlling diabetes.

In 1999, 5% of Massachusetts adults reported that they had diabetes. The percentage of adults with diabetes increased with increasing age, and decreased with increasing education and income. Asians were less likely to report diabetes. The prevalence of diabetes was high among adults unable to work. 54% of Massachusetts adults reported hearing, reading, or seeing information about the importance of controlling diabetes. Women and White adults were more likely to have encountered this information. The percentage of adults who encountered this information increased with increasing education and income.

DIABETES AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	DIABETES		HEARD, READ OR SEEN INFORMATION ABOUT IMPORTANCE OF CONTROLLING DIABETES	
	%	95% CI	%	95% CI
OVERALL	4.9	4.2 - 5.7	53.6	51.9 - 55.5
GENDER				
MALE	6.0	4.8 - 7.4	48.7	45.8 - 51.6
FEMALE	3.9	3.2 - 4.7	58.2	56.1 - 60.4
AGE GROUP				
18 – 24	1.1	0.4 - 2.8	40.9	34.4 - 47.4
25 – 34	1.1	0.6 - 2.1	48.0	43.8 - 52.3
35 – 44	1.8	1.2 - 2.8	54.7	51.1 - 58.3
45 – 54	5.0	3.1 - 7.8	62.1	58.2 - 66.0
55 – 64	9.6	6.5 - 14.0	64.2	59.3 - 69.0
65 - 74	14.0	11.0 - 17.5	60.5	55.7 - 65.4
75 AND OLDER	12.7	9.6 - 16.7	47.1	44.3 - 57.4
RACE/ETHNICITY				
WHITE, NON-HISPANIC	5.0	4.3 - 5.9	55.4	53.4 - 57.3
BLACK, NON-HISPANIC	5.6	4.0 - 7.7	48.1	39.4 - 56.9
HISPANIC	4.7	2.8 - 7.8	39.9	33.1 - 46.7
ASIAN	0.5	0.1 - 3.6	33.8	22.6 - 44.9
EDUCATION				
< HIGH SCHOOL	12.6	8.2 - 18.9	38.3	31.4 - 4 5.3
HIGH SCHOOL	5.9	4.8 - 7.4	44.3	41.2 - 47.3
COLLEGE 1 - 3 YRS	4.0	2.9 - 5.3	56.8	53.0 - 60.6
COLLEGE 4+ YRS	2.9	2.2 - 3.9	62.5	59.6 - 65.4
HOUSEHOLD INCOME				
<$25,000	10.8	8.2 - 14.0	49.8	45.3 - 54.2
$25 - 34,999	4.8	3.1 - 7.5	52.0	46.5 - 57.5
$35 - 49,999	2.7	1.7 - 4.2	58.0	53.3 - 62.6
$50 - 74,999	2.9	1.8 - 4.6	60.0	55.3 - 64.4
$75,000+	1.6	0.9 - 2.8	62.1	58.0 - 66.3
EMPLOYMENT				
EMPLOYED	2.5	2.0 - 3.2	55.3	53.1 - 57.5
UNEMPLOYED	3.2	1.5 - 6.4	47.9	39.2 - 56.5
UNABLE TO WORK	16.9	9.4 - 26.4	47.9	38.4 - 57.4
HOMEMAKER	1.1	0.4 - 3.0	52.9	44.5 - 61.3
STUDENT	0.0	0.0 - 0.3	41.9	30.0 - 53.7
RETIRED	14.5	11.9 - 17.6	54.2	50.4 - 57.9

Table 17a

Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  Since 1989, there has been no change in the percentage of adults age 18 and older who reported having diabetes.

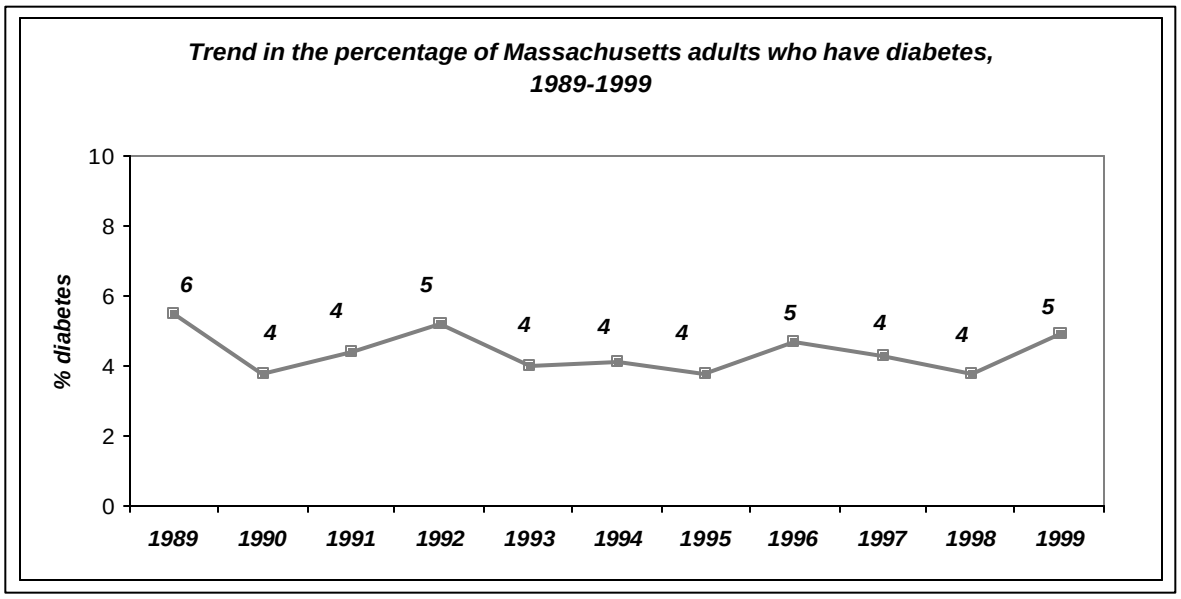


Figure 17a Source: Massachusetts BRFSS, 1989-1999

- **Comparison with National Data and Healthy People 2010 objectives:**
  Compared to other states, Massachusetts had the 13th lowest percentage of adults with diabetes. Massachusetts has not yet attained the Healthy People 2010 objectives for the percentage of adults with diabetes.

DIABETES	
Massachusetts %	4.9%
US Median %	5.9%
Range of US States	3.5 - 9.6%
*Massachusetts rank**	13th
Healthy People 2010%	2.5%

*Based on lowest risk or healthiest behavior – 1st = best

Table 17b Source: US and MA BRFSS, 1999, HP 2010 Objectives

BOX 17: RESEARCH BRIEFS ON DIABETES

Information on controlling diabetes

In 1999, all respondents were asked if they had heard, read, or seen any information about the importance of controlling diabetes in the past six months. Almost 54% reported hearing, reading or seeing information about the importance of controlling diabetes in the past six months. Table 17c details where these respondents got their information. Respondents indicated that the newspaper and the television were their primary sources for information.

Source of information (N=2649)	Frequency (%)
TV	50.7
Radio	18.1
Billboard	9.7
Newspaper	68.4
Brochure	46.0
Health professional	38.9
Family/friends	40.5
Work	21.0

Table 17c Source: MA BRFSS, 1999

Immunization

Patients with diabetes may have abnormalities in immune function and presumed increased morbidity and mortality from infection and are at high risk for complications, hospitalization, and death from influenza and pneumococcal disease. Immunization against influenza and pneumococcal disease is an important part of preventive services for many chronic diseases such as diabetes. Figure 17b displays the percentages of adults with and without diabetics who received a flu shot in the past year, stratified by age. Among both age groups, diabetics were more likely to have received a flu vaccine in the past year than non-diabetics. Similarly, adults with diabetes were more likely to have ever had a pneumonia vaccine among younger and older adults then adults without diabetes. (Figure 17c)

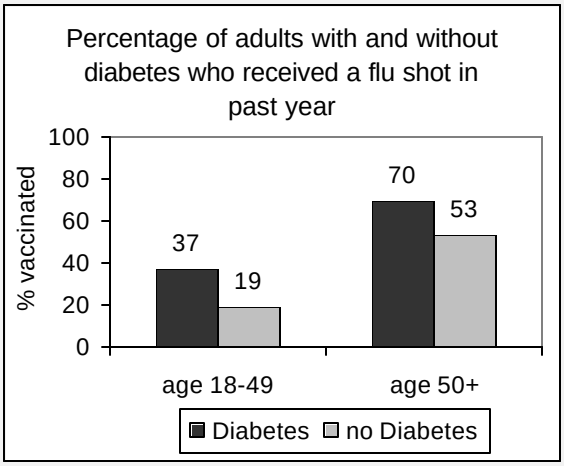


Figure 17b Source: MA BRFSS, 1999

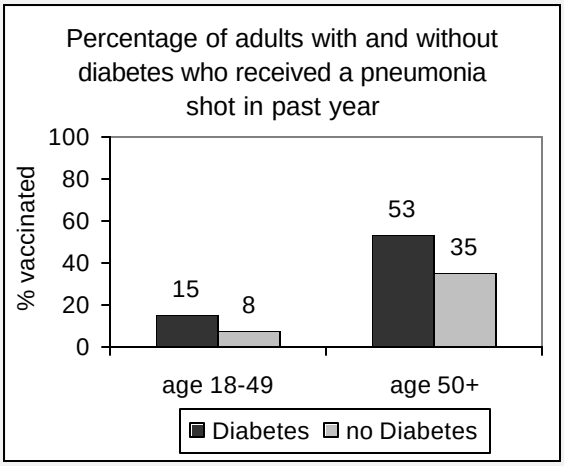


Figure 17c Source: MA BRFSS, 1999

SECTION 18. DISABILITY AND ACTIVITY LIMITATIONS

In 1999, all respondents were asked about disabilities and activity limitations. Respondents who reported a disability or limitation were asked if they needed help with routine needs or personal care. Respondents were classified as having a disability or limitation if they had an impairment that limited work or activities or caused cognitive difficulties, if they used special equipment or help from others to get around, or if they reported a disability of any kind. We examined percentage of adults who reported a disability of at least one year, and the percentage of adults who reported a disability or limitation and needed help with daily activities.

In 1999, 19% of Massachusetts adults reported having a disability for at least one year. The percentage of adults with a disability increased with increasing age. Adults with higher levels of income and education and Asian adults were less likely to report a disability. A high percentage of adults who were unable to work reported a disability. Five percent of Massachusetts adults reported having a disability that required help with daily activities. The profile of adults who needed help with daily activities due to disability was similar to that of all adults with disability.

DISABILITY AND ACTIVITY LIMITATIONS AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	DISABILITY OF ONE YEAR OR MORE		DISABILITY AND NEED HELP WITH ACTIVITIES	
	%	95% CI	%	95% CI
OVERALL	18.6	17.2 - 19.9	5.0	4.4 - 5.8
GENDER				
MALE	18.8	16.7 - 21.0	4.0	3.0 - 5.2
FEMALE	18.4	16.7 - 20.0	6.0	5.2 - 7.0
AGE GROUP				
18 – 24	9.9	6.7 - 13.0	0.4	0.2 - 1.1
25 – 34	11.0	8.6 - 13.5	1.7	1.1 - 2.8
35 – 44	13.1	10.9 - 15.2	3.5	2.6 - 4.8
45 – 54	20.8	17.3 - 24.3	5.6	4.1 - 7.6
55 – 64	30.7	25.3 - 36.0	8.5	5.3 - 13.2
65 - 74	30.4	25.8 - 35.0	8.9	6.5 - 12.2
75 AND OLDER	38.2	32.4 - 44.0	17.8	13.7 - 22.7
RACE/ETHNICITY				
WHITE, NON-HISPANIC	18.7	17.2 - 20.2	4.9	4.2 - 5.7
BLACK, NON-HISPANIC	20.8	15.3 - 26.4	7.3	4.6 - 11.5
HISPANIC	20.0	15.2 - 24.9	6.0	3.9 - 9.0
ASIAN	6.1	0.9 - 11.2	0.5	0.1 - 2.0
EDUCATION				
< HIGH SCHOOL	38.4	31.6 - 45.2	14.5	10.1 - 20.3
HIGH SCHOOL	20.0	17.6 - 22.4	5.8	4.6 - 7.3
COLLEGE 1 - 3 YRS	18.4	15.8 - 20.9	4.9	3.7 - 6.4
COLLEGE 4+ YRS	13.7	11.7 - 15.6	2.7	2.0 - 3.6
HOUSEHOLD INCOME				
<$25,000	33.4	29.2 - 37.6	11.2	8.7 - 14.2
$25 - 34,999	18.9	14.9 - 22.8	4.1	2.5 - 6.5
$35 - 49,999	11.6	9.0 - 14.3	2.1	1.2 - 3.6
$50 - 74,999	13.7	10.8 - 16.6	1.7	0.9 - 3.0
$75,000+	9.8	7.6 - 11.9	1.4	0.8 - 2.6
EMPLOYMENT				
EMPLOYED	11.5	10.1 - 12.8	1.2	0.8 - 1.6
UNEMPLOYED	31.6	23.5 - 39.7	11.1	7.0 - 17.3
UNABLE TO WORK	92.4	88.0 - 96.9	46.3	36.4 - 56.6
HOMEMAKER	12.0	7.2 - 16.9	1.8	0.7 - 4.6
STUDENT	9.9	5.0 - 14.8	0.1	0.0 - 0.6
RETIRED	36.4	32.6 - 40.2	14.9	12.1 - 18.3

Table 18a

Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  data not available

- **Comparison with National Data and Healthy People 2010 Objectives:**
  data not available

BOX 18: RESEARCH BRIEFS ON DISABILITY AND ACTIVITY LIMITATIONS

Type of Health Problem or Disability

Based on data from 1998 and 1999, 29% of adults with disabilities reported that the limitations were due to orthopedic problems, 11% due to arthritis, 18% due to chronic conditions such as heart or lung problems, stroke, hypertension or diabetes, 8% reported trouble with hearing or vision, and 7% reported affective disorders such as depression, anxiety and emotional problems. The median age was 39 years for adults without disabilities, 50 years for adults with disabilities who did not need help, and 57 years for those who did need help. Figure 18a shows that that age also differed among adults with dis-abilities by type of health problem or disability. Individuals with affective disorders were youngest and those with arthritis and chronic conditions were oldest.

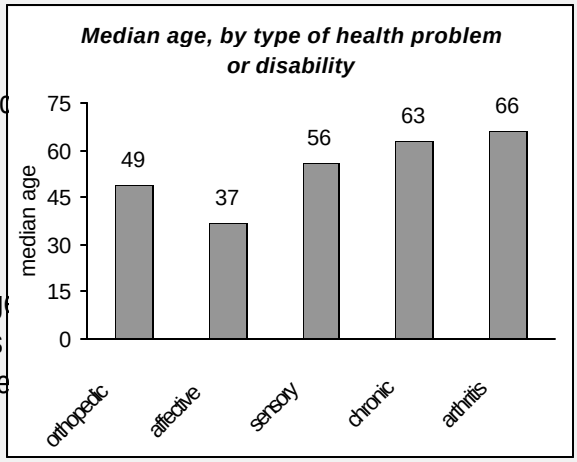


Figure 18 a Source: MA BRFSS, 1998-1999

Overall Health Status

Overall, after adjusting for age, adults with disabilities were much more likely to report fair or poor health (34%) compared to adults without disabilities (4%). Figure 18b shows that poor health varied by type of health problem or disability. Adjusting for differences in age, adults with chronic conditions were more likely than those with other conditions to report fair or poor health.

Individuals with disabilities were also more likely to report fewer healthy days* in the past month, compared to those without disabilities. Adjusting for age, the mean number of healthy days in the past month was 17 for adults with disabilities, compared to 26 days for adults without disabilities. Mean healthy days varied only slightly by type of health problem or disability.

*Healthy days is defined as the number of days in the past month that a respondent had good physical and mental health.

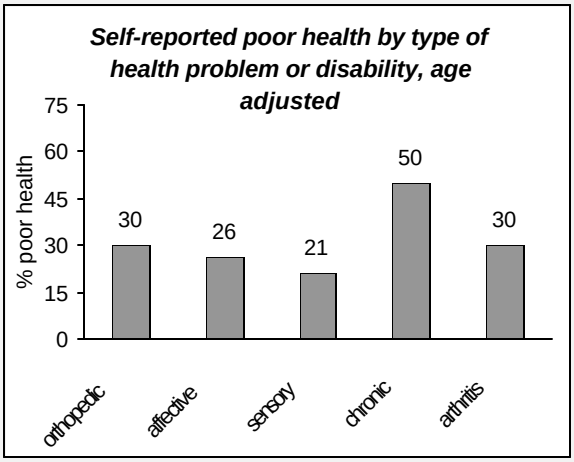


Figure 18b Source: MA BRFSS, 1998-1999

BOX 18 (CONTINUED): RESEARCH BRIEFS ON DISABILITY AND ACTIVITY LIMITATIONS

Smoking among adults with disability

Healthy People 2010 goals include to promote the health of adults with disabilities, to prevent secondary conditions, and to eliminate health disparities between people with and without disabilities. One potential source of such disparities is cigarette smoking, the leading preventable risk factor for morbidity and mortality in the U. S.

Adjusting for age, adults with disabilities were more likely to be current smokers (31%) than adults without disabilities (17%). Smoking rates also varied by severity of disability. 28% of adults with disabilities who needed help were current smokers compared to 39% of those who did not need help. Figure 18c shows that smoking rates also depended on type of health problem or disability. Adults with affective disorders were more likely to be current smoking than adults with other types of disabilities.

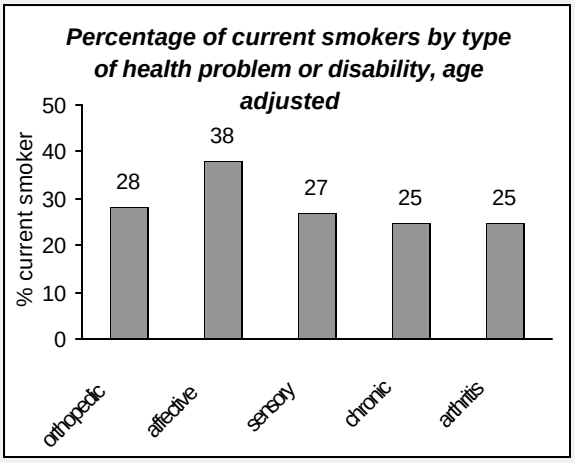


Figure 18c Source: MA BRFSS, 1999

Measures of Smoking Intensity and Addiction

Smoking more than 20 cigarettes (1 pack) per day and smoking within 5 minutes of waking are measures of smoking intensity and nicotine dependence. Figure 18d shows that, adjusting for age, smokers with disabilities were more likely than those without disabilities to smoke more than 20 cigarettes per day and to smoke within 5 minutes of waking.

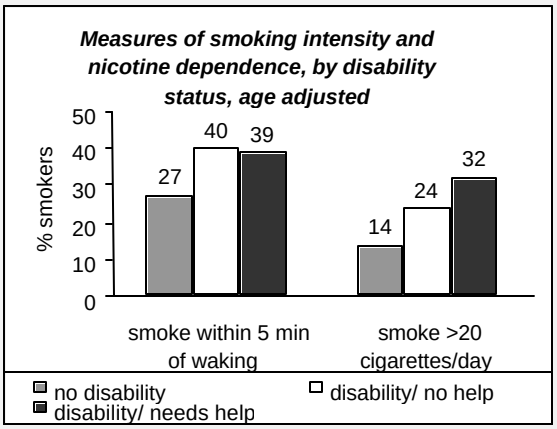
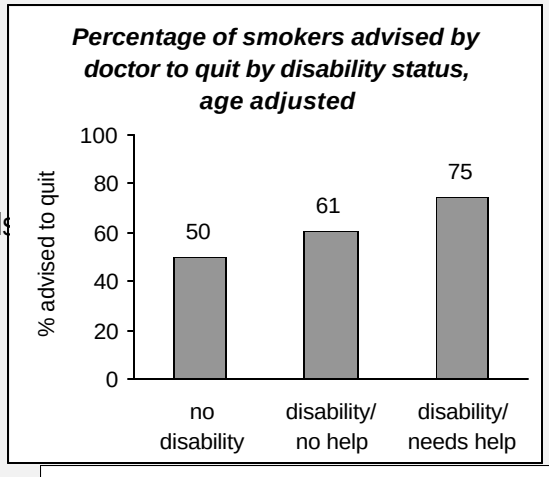


Figure 18d Source: MA BRFSS, 1999

Factors Associated with Quitting

Smokers with disabilities were more likely than smokers without disabilities to have been advised by a doctor to quit smoking in the last year. Smokers who needed assistance were particularly more likely to have been advised to quit (Figure 18e). Since adults with disabilities were more likely to have had a recent checkup, we also limited the analysis to individuals who had a checkup in the past year. Even among adults who had a recent routine checkup, individuals with disabilities were still more likely to have been advised by a doctor to quit (data not shown).

Compared to smokers without disabilities, smokers with disabilities were not more likely to be planning to quit or to have made a quit attempt in the past year.



Percentage of current smokers by type

SECTION 19. SEXUAL ASSAULT AND INTIMATE PARTNER ABUSE

All women age 18 to 59 were asked questions about sexual contact against their will and physical or emotional abuse. In this analysis, we examined the percentage of women who had ever been sexually assaulted, the percentage of women sexually assaulted in the past year, and the percentage of women experiencing intimate partner abuse, defined as having been physically hurt, threatened or controlled by a current or ex - husband, live - in partner, or boyfriend or girlfriend in the past year.

In 1999, 19% of Massachusetts women age 18 to 59 reported ever being assaulted sexually. Women with at least a high school education were more likely to report ever being sexually assaulted. Asian women were less likely to report ever being sexually assaulted. Almost 13,000 women (0.7%) of women age 18-59 reported being sexually assaulted in the past year. Women age 18 – 24 were more likely to report sexual assault in the past year. 5% of women age 18 to 59 reported intimate partner abuse in the past year. Report of intimate partner abuse in the past year was higher among Black women and women unable to work. Report of recent intimate partner abuse decreased with increasing education and income.

SEXUAL ASSAULT AND INTIMATE PARTNER ABUSE AMONG WOMEN AGE 18 – 59, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	EVER SEXUALLY ASSAULTED		SEXUALLY ASSAULTED IN PAST YEAR		INTIMATE PARTNER ABUSE IN PAST YEAR	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	19.2	17.3 - 21.2	0.7	0.4 - 1.3	5.0	4.0 - 6.1
AGE GROUP						
18 – 24	17.3	12.0 - 22.5	2.2	0.8 - 5.9	7.1	4.4 - 11.5
25 – 34	18.6	14.6 - 22.6	0.1	0.0 - 0.3	5.2	3.7 - 7.5
35 – 44	24.4	20.5 - 28.3	0.7	0.2 - 1.8	5.4	3.8 - 7.6
45 – 54	16.9	13.2 - 20.5	0.6	0.1 - 2.2	2.5	1.4 - 4.7
55 – 59	15.3	9.8 - 20.9	0.1	0.0 - 0.6	4.8	2.4 - 9.6
RACE/ETHNICITY						
WHITE, NON-HISPANIC	20.2	18.0 - 22.5	0.4	0.2 - 0.8	4.9	3.8 - 6.2
BLACK, NON-HISPANIC	18.2	11.2 - 25.2	1.9	0.7 - 5.1	10.6	6.7 -16.5
HISPANIC	15.9	9.3 - 22.4	3.5	1.1 - 11.0	5.6	3.6 - 8.5
ASIAN	7.7	1.1 - 14.2	0		2.0	0.6 - 5.1
EDUCATION						
< HIGH SCHOOL	10.6	5.9 - 15.3	0.7	0.2 - 2.9	11.1	6.5 -18.3
HIGH SCHOOL	18.5	14.5 - 22.5	0.7	0.1 - 3.2	7.0	4.9 - 10.1
COLLEGE 1 - 3 YRS	20.9	17.1 - 24.7	1.5	0.7 - 3.5	4.2	2.9 - 6.0
COLLEGE 4+ YRS	20.0	16.8 - 23.2	0.2	0.1 - 0.9	3.2	2.1 - 4.8
HOUSEHOLD INCOME						
<$25,000	27.9	21.8 - 34.1	0.4	0.2 - 1.0	10.4	7.5 - 14.5
$25 – 34,999	20.3	14.7 - 25.8	0.2	0.0 - 0.7	7.2	4.4 - 11.6
$35 – 49,999	17.2	12.7 - 21.8	0.8	0.2 - 3.0	5.3	3.1 - 8.7
$50 – 74,999	22.8	18.0 - 27.6	0.7	0.2 - 2.4	2.5	1.2 - 4.8
$75,000+	19.0	14.5 - 23.5	0.3	0.0 - 2.1	0.6	0.2 - 1.8
EMPLOYMENT						
EMPLOYED	19.3	17.0 - 21.6	0.6	0.3 - 1.2	4.3	3.4 - 5.6
UNEMPLOYED	21.8	12.5 - 31.2	0.6	0.2 - 1.9	10.0	5.2 - 18.5
UNABLE TO WORK	29.0	18.2 - 39.8	1.1	0.2 - 7.5	17.1	9.8 - 28.0
HOMEMAKER	12.9	7.5 - 17.9	†		3.2	1.5 - 6.4
STUDENT	24.3	14.9 - 33.7	3.7	1.0 - 12.1	5.7	2.4 - 13.1

Table 19a

Source: Massachusetts BRFSS, 1999
† insufficient sample size

- **Trends over time:**
  data not available

- **Comparison with National Data and Healthy People 2010 Objectives:**
  data not available

BOX 19: RESEARCH BRIEFS ON SEXUAL ASSAULT AND INTIMATE PARTNER ABUSE

Who do women tell about sexual assault?
Women age 18 to 59 who had experienced unwanted sexual contact in the previous five years were asked if they had told anyone about the most recent incident. Almost 90% of women who had unwanted sexual contact within the past five years told at least one person about the assault. Women were most likely to have told a friend or family member about the incident (Table 19b). Only 16% of women reported telling the police about the unwanted sexual contact.

Among Massachusetts women aged 18-59 who experienced unwanted sexual contact, the percentage who told the following people about the incident.

	(%)
Friend	79%
Family member	45%
Clergy	8%
Medical provider	20%
Police	16%
Rape Crisis Counselor	11%
Therapist	18%

Table 19b. Source: Massachusetts BRFSS, 1999

Disability, sexual assault, and intimate partner violence
Almost 19% of Massachusetts women age 18 to 59 described themselves as having a limitation or disability of any kind. Thirty-one percent of women who were limited or disabled reported unwanted sexual contact (SA) compared to 17% women who did not have a limitation Moreover, women with a limitation were at higher risk of both sexual assault and intimate partner abuse (IPA) in the past year. Even taking into account differences in age, women who had a limitation were at four-fold higher risk of sexual assault in the past year, and three-fold higher risk of intimate partner abuse during this same amount of time. (Figure 19a). Among women who had experienced assault in the past year, those with a limitation were more than six times as likely to say that the assault occurred as a result of a stranger compared to those without a limitation (60% versus 9%, respectively).

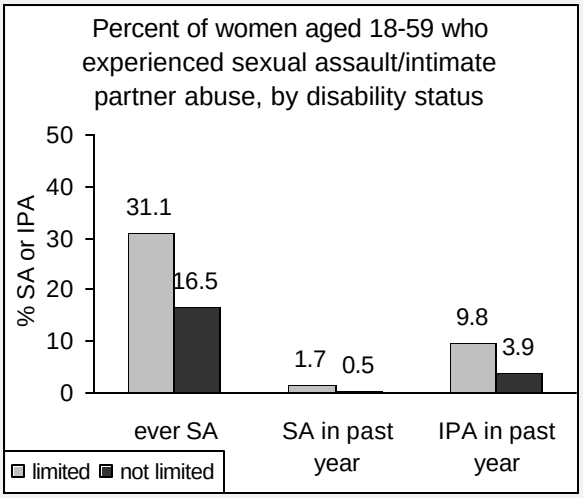


Figure 19a Source: Massachusetts BRFSS, 1999

SECTION 20. FOLIC ACID

All women age 18 to 44 and who had not had a hysterectomy were asked whether they had ever heard of the B vitamin folic acid, and if they took multivitamins or other supplements containing folic acid. Women who reported taking multivitamins or folic acid supplements were asked how often they took these pilss. We examined the percentage of women who reported daily folic acid use.

In 1999, 79% of Massachusetts women age 18 - 44 reported having heard of folic acid. The percentage of women who had heard of folic acid increased with increasing age, level of education and income. Hispanic women were least likely to have heard of folic acid. 41% of Massachusetts women age 18 - 45 reported consuming folic acid daily. As with folic acid awareness, the daily use of folic acid also increased with increasing age, education, and income. Hispanic women were least likely to consume folic acid daily.

FOLIC ACID AWARENESS AND USE AMONG MASSACHUSETTS WOMEN, AGE 18 TO 44, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	FOLIC ACID AWARENESS *		DAILY FOLIC ACID USE*	
	%	95% CI	%	95% CI
OVERALL	79.3	76.8 - 81.4	41.1	38.2 - 44.0
AGE GROUP				
18 – 24	72.2	66.0 - 78.4	33.0	26.1 - 40.0
25 - 34	79.7	76.2 - 83.2	42.5	38.0 - 47.1
35 - 44	83.9	81.0 - 86.8	45.1	40.7 - 49.5
RACE/ETHNICITY				
WHITE, NON-HISPANIC	84.5	82.3 - 87.3	43.4	40.0 - 46.8
BLACK, NON-HISPANIC	67.4	57.6 - 77.3	36.3	26.5 - 46.0
HISPANIC	44.7	36.4 - 53.0	25.0	18.7 - 31.4
ASIAN	77.7	65.0 - 90.3	33.0	18.6 - 47.4
EDUCATION				
<HIGH SCHOOL	42.5	30.6 - 54.5	25.4	14.5 - 36.4
HIGH SCHOOL	66.5	60.8 - 72.1	35.2	29.3 - 41.1
COLLEGE 1 - 3 YRS	85.3	81.7 - 88.9	44.9	39.3 - 50.4
COLLEGE 4+ YRS	89.4	86.6 - 92.2	44.8	40.3 - 49.4
HOUSEHOLD INCOME				
<$25,000	67.2	60.4 - 74.0	30.0	23.3 - 36.5
$25 - 34,999	82.0	75.9 - 88.1	39.8	31.5 - 48.1
$35 - 49,999	85.0	78.6 - 90.3	43.9	36.3 - 51.4
$50 - 74,999	90.8	86.7 - 94.9	44.5	37.5 - 51.4
$75,000+	90.7	86.7 - 94.7	53.1	46.3 - 60.0
EMPLOYMENT				
EMPLOYED	81.4	78.9 - 84.0	41.1	37.7 - 44.5
UNEMPLOYED	71.3	60.9 - 81.7	54.2	42.4 - 66.1
UNABLE TO WORK	46.7	27.8 - 65.6	†	
HOMEMAKER	81.0	73.8 - 88.3	45.2	35.9 - 54.5
STUDENT	70.6	60.0 - 81.2	33.4	22.5 - 44.4

Table 20a

Source: Massachusetts BRFSS, 1999

***** among women without hysterectomy

† insufficient sample size

- **Trends over time:**
  data not available

- **Comparison with National Data and Healthy People 2010 Objectives:**
  data not available

SECTION 21: CHILDREN'S HEALTH

In addition to answering questions about their own health, respondents were asked questions regarding the health of other household members, including children. We estimated the prevalence of several health characteristics among Massachusetts children, including health care access and utilization, dental care access and utilization, chicken pox, asthma, and disability.

Respondents with at least one child under the age of 18 in the household were asked questions about a randomly selected child, including whether the child had health insurance, was unable to see a doctor because of cost in the past year, and how long it had been since that child's last checkup. Appropriate preventive health care varies according to age of the child, and was defined as a check-up within the past 3 months for children under age 1, within the past 6 months for children 1 to 2 years of age, and within the past year for children age 3 to 17.

In 1999, 2% of Massachusetts children had no health insurance; 2% were unable to see a doctor because of cost. The percentage of children who were uninsured and the percentage of children unable to see a doctor increased with decreasing household income. 95% of Massachusetts children received appropriate preventive health care in the past year. The percentage of children receiving appropriate preventive health care did not vary according to the child's age or household income.

HEALTH CARE ACCESS AND UTILIZATION AMONG MASSACHUSETTS CHILDREN, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	NO HEALTH INSURANCE		UNABLE TO SEE DOCTOR BECAUSE OF COST		APPROPRIATE PREVENTIVE HEALTH CARE	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	2.0	1.4 - 3.0	2.3	1.6 - 3.2	95.5	94.2 - 96.6
AGE GROUP						
< 1	3.5	0.6 -17.7	1.1	0.2 - 5.3	97.9	88.5 - 99.7
1 - 4	0.6	0.2 - 1.9	1.7	0.8 - 3.4	95.0	92.1 - 96.9
5 - 9	3.9	2.2 - 6.7	3.6	1.9 - 6.8	96.4	93.5 - 98.1
10 – 17	1.8	1.0 - 3.0	2.0	1.2 - 3.5	95.1	92.8 - 96.7
HOUSEHOLD INCOME						
<$25,000	4.8	2.6 - 8.7	4.8	2.7 - 8.3	94.7	89.7 - 97.3
$25 - 34,999	2.1	0.7 - 6.5	4.5	2.1 - 9.5	96.5	92.5 - 98.4
$35 - 49,999	1.6	0.6 - 4.0	2.5	0.8 - 7.0	95.5	90.6 - 98.0
$50 - 74,999	0.7	0.1 - 3.3	2.2	1.0 - 5.0	95.8	92.5 - 97.7
$75,000+	0.3	0.1 - 2.5	0.9	0.3 - 3.1	96.1	93.3 - 97.8

Table 21a

Source: Massachusetts BRFSS, 1999

Respondents who had at least one child were asked questions regarding dental care access and utilization about a randomly selected child. Respondents were asked whether the child visited a dentist in the past year and whether the child was unable to see a dentist in the past year because of cost.

In 1999 89% of Massachusetts children age 6 to 17 visited a dentist in the past year. Annual dental check-ups among children increased with increasing household income. 5% of Massachusetts children could not see a dentist in the past year because of cost. Children age 6 and older were more likely to be unable to see the dentist. The percentage of children unable to see a dentist because of cost decreased with increasing household income.

DENTAL CARE ACCESS AND UTILIZATION, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	VISITED A DENTIST IN LAST 12 MONTHS		COULD NOT SEE DENTIST BECAUSE OF COST	
	%	95% CI	%	95% CI
OVERALL	89.1	87.0 - 91.2	5.2	4.1 - 6.3
AGE GROUP				
< 1	*		0.2	0.0 - 0.6
1 - 5	*		2.2	0.9 - 3.4
6 - 9	86.7	82.4 - 91.0	6.1	3.6 - 8.7
10-17	91.6	89.3 - 94.0	5.0	3.3 - 6.7
HOUSEHOLD INCOME				
<$25,000	77.8	69.9 - 85.6	8.9	5.5 - 12.4
$25 - 34,999	84.7	76.9 - 92.6	7.5	3.5 - 11.5
$35 - 49,999	86.1	79.7 - 92.3	5.7	2.8 - 8.6
$50 - 74,999	95.1	91.6 - 98.5	4.3	1.9 - 6.7
$75,000+	96.3	93.8 - 98.7	2.2	0.5 - 3.9

Table 21b Source: Massachusetts BRFSS, 1999

* asked only of respondents with children over 6 years of age.

Respondents were asked whether anyone in their household had chicken pox in the past year. In 1999, 2% of Massachusetts children had chicken pox in the past year. The incidence of chicken pox in the previous year was highest among children 1 to 9 years of age. The percentage of children with recent chicken pox infection did not vary by household income.

CHICKEN POX

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	CHICKEN POX IN THE PAST YEAR	
	%	95% CI
OVERALL	2.3	1.7 - 3.2
AGE GROUP		
< 1	0.6	0.1 - 3.1
1 – 4	3.5	2.0 - 6.2
5 – 9	3.8	2.5 - 5.8
10 – 17	0.8	0.4 - 1.6
HOUSEHOLD INCOME		
<$25,000	3.1	1.3 - 6.9
$25 – 34,999	1.7	0.6 - 4.3
$35 – 49,999	1.5	0.6 - 3.5
$50 – 74,999	1.7	0.9 - 3.2
$75,000+	3.1	1.9 - 5.0

Table 21c Source: Massachusetts BRFSS, 1999

Respondents were asked whether anyone in their household had a disability or was limited in any activities because of impairment or health problem. In 1999, 2% of Massachusetts children had a limitation or disability. The percentage of children with a disability increased with age, and decreased with increasing household income.

DISABILITY

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	DISABILITY	
	%	95% CI
OVERALL	2.2	1.6 - 2.9
AGE GROUP		
< 1	0.0	0.0 - 0.3
1 - 4	1.3	0.6 - 2.8
5 - 9	1.7	0.9 - 3.2
10 - 17	3.3	2.3 - 4.7
HOUSEHOLD INCOME		
<$25,000	2.8	1.4 - 5.5
$25 - 34,999	2.4	0.8 - 6.6
$35 - 49,999	2.4	1.2 - 4.5
$50 - 74,999	1.7	0.7 - 3.8
$75,000+	1.7	0.9 - 3.0

Table 21d Source: Massachusetts BRFSS, 1999

BOX 21: RESEARCH BRIEFS ON CHILDREN'S HEALTH

Varicella Immunization

Varicella immunization against the chicken pox infection has been available to Massachusetts children since 1996. The number of doses of vaccine administered in Massachusetts has increased steadily each year since its inception. In 1999, immunity against varicella became mandatory for kindergarten and 7th grade entry at public schools.

The BRFSS has been gathering information about chicken pox since 1998. It is possible, therefore, to examine whether the increasing state-wide use of the varicella vaccine coincides with a decrease in the prevalence of chicken pox in Massachusetts children. Figure 21a compares the percentage of children who reported having chicken pox in the past year in 1998 and 1999. For all age groups, the percentage of children reporting chicken pox in the past year is lower in 1999 compared to 1998. This drop is greatest in children ages 1 through 9.

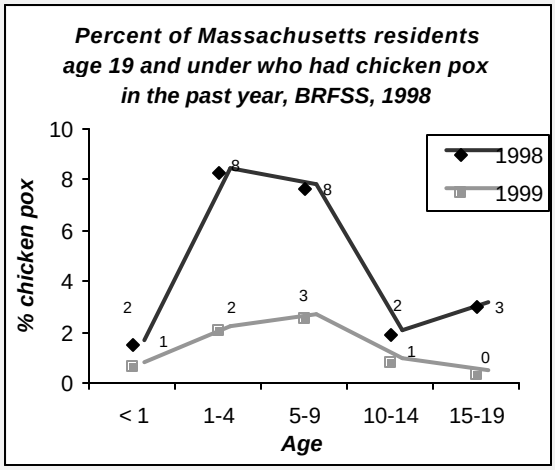


Figure 21a Source: Massachusetts BRFSS, 1998 and 1999

Throughout 1998 and 1999, the percentage of respondents reporting a household member with chicken pox in the past year declined steadily. Figure 21b shows the percentage of Massachusetts residents age 19 and younger who had chicken pox in the past year, by time of interview. Although there are some fluctuations, overall the prevalence of chicken pox has continually decreased from January, 1998 through December, 1999.

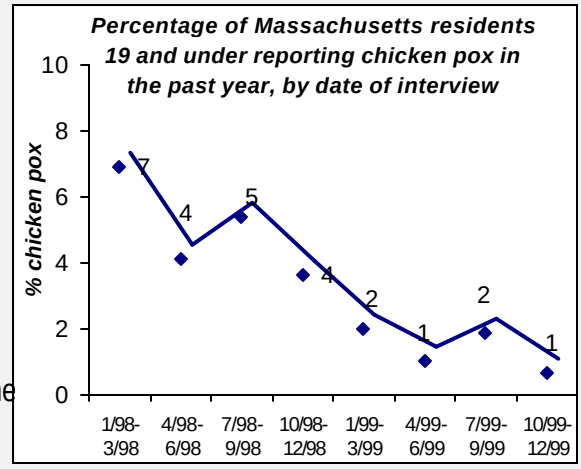


Figure 21b Source: Massachusetts BRFSS, 1998 and 1999

SECTION 22. HIV/AIDS RISK AND TESTING

In 1999, respondents age 18 to 64 were asked to assess their risk of contracting HIV, the virus that causes AIDS. All adults age 18 to 64 were also asked if they had ever been tested for HIV, and if they had been tested in the past year.

In 1999, 8% of Massachusetts adults age 18 to 64 considered themselves at high or medium risk of contracting HIV. Men, adults age 18 to 24, Black and Hispanic adults, and adults with low levels of income and education were more likely to view themselves at high or medium risk. 46% of adults had ever been tested for HIV. Men, adults age 25 to 34, Blacks, and Hispanics were more likely to have ever been tested for HIV. 16% of adults were tested in the past year. Recent testing was highest among younger adults, and Black and Hispanic adults. Recent testing decreased with increasing income.

HIV/AIDS RISK AND TESTING AMONG MASSACHUSETTS ADULTS AGE 18 TO 64, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	HIGH/MEDIUM RISK OF INFECTION		EVER TESTED FOR HIV		TESTED FOR HIV IN PAST YEAR	
	%	95% CI	%	95% CI	%	95% CI
OVERALL	8.1	7.0 - 9.2	46.2	44.3 - 48.1	15.9	14.4 - 17.3
GENDER						
MALE	9.9	7.9 - 11.8	49.0	45.9 - 52.0	17.2	14.8 - 19.6
FEMALE	6.3	5.2 - 7.4	43.6	41.3 - 45.9	14.6	12.9 - 16.3
AGE GROUP						
18 – 24	12.7	9.3 - 16.1	39.9	34.2 - 45.6	22.2	17.7 - 26.8
25 – 34	7.8	5.6 - 10.1	62.6	58.8 - 66.3	19.4	16.5 - 22.3
35 – 44	7.4	5.3 - 9.5	49.5	46.1 - 52.9	15.6	12.9 - 18.4
45 – 54	7.5	4.9 - 10.1	34.3	30.7 - 37.9	9.1	6.9 - 11.3
55 – 64	4.3	2.5 - 6.1	32.6	27.7 - 37.5	10.7	6.7 - 14.8
RACE/ETHNICITY						
WHITE, NON-HISPANIC	6.7	5.6 - 7.9	45.2	43.0 - 47.3	14.5	12.9 - 16.1
BLACK, NON-HISPANIC	13.9	8.8 - 19.1	61.5	54.9 - 68.1	28.5	22.4 - 34.6
HISPANIC	18.9	12.5 - 25.3	55.9	49.6 - 62.2	26.5	21.1 - 31.8
ASIAN	7.7	2.6 - 12.7	37.3	26.5 - 48.0	12.1	4.9 - 19.2
EDUCATION						
< HIGH SCHOOL	17.4	10.8 - 24.0	47.2	39.1 - 55.3	19.5	13.1 - 25.9
HIGH SCHOOL	7.4	5.6 - 9.2	46.0	42.5 - 49.5	17.7	15.0 - 20.4
COLLEGE 1 - 3 YRS	9.6	7.1 - 12.0	44.5	40.5 - 48.4	15.8	12.7 - 18.8
COLLEGE 4+ YRS	6.0	4.5 - 7.5	47.4	44.4 - 50.3	14.2	12.1 - 16.3
HOUSEHOLD INCOME						
<$25,000	12.7	9.2 - 16.3	48.6	43.4 - 53.8	23.6	19.0 - 28.3
$25 - 34,999	10.2	6.8 - 13.6	50.0	44.3 - 55.8	21.0	15.7 - 26.3
$35 - 49,999	6.2	4.0 - 8.3	47.3	42.6 - 52.0	18.2	14.7 - 21.8
$50 - 74,999	7.6	4.6 - 10.5	45.3	40.8 - 49.8	11.0	8.3 - 13.7
$75,000+	5.3	3.1 - 7.6	48.2	44.1 - 52.3	14.2	11.1 - 17.3
EMPLOYMENT						
EMPLOYED	7.9	6.7 - 9.0	47.0	44.9 - 49.1	14.8	13.3 - 16.3
UNEMPLOYED	6.9	3.9 - 9.9	48.1	39.9 - 56.2	24.1	17.2 - 30.9
UNABLE TO WORK	15.3	4.3 - 26.3	51.8	41.9 - 61.6	20.6	13.4 - 27.9
HOMEMAKER	6.1	0.0 - 14.3	47.4	39.0 - 55.8	18.8	12.4 - 25.1
STUDENT	11.3	6.0 - 16.6	38.3	28.0 - 48.7	20.3	11.5 - 29.1
RETIRED	3.4	0.4 - 6.3	35.7	24.4 - 46.9	12.8	1.5 - 24.1

Table 22a

Source: Massachusetts BRFSS, 1999

- **Trends over time:**
  The percentage of adults age 18 to 64 that consider themselves at high or medium risk of HIV has not changed significantly since 1993. The percentage of adults who were ever tested for HIV virus increased substantially since 1993.

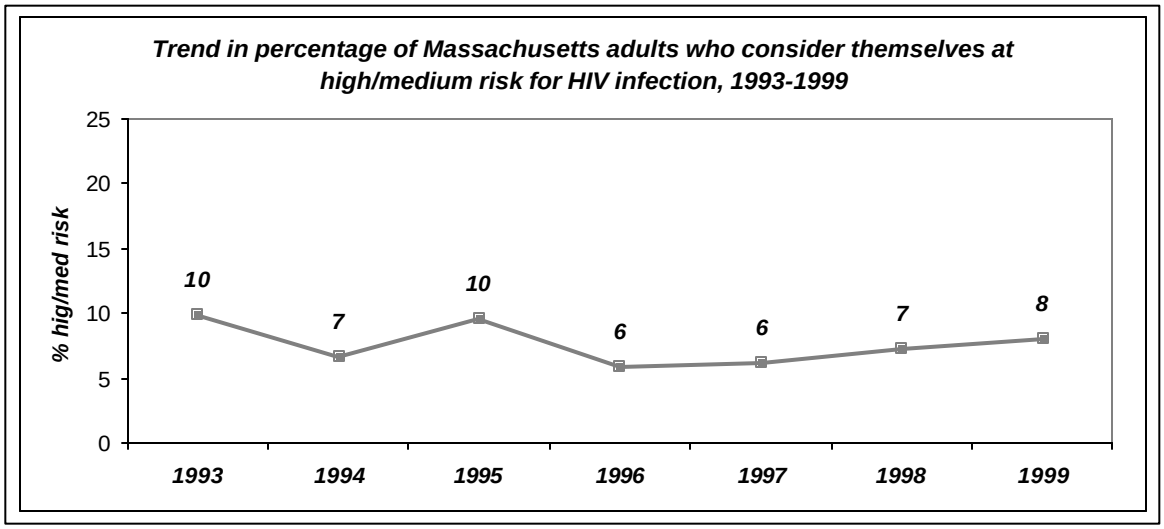


Figure 22a Source: Massachusetts BRFSS, 1993 - 1999

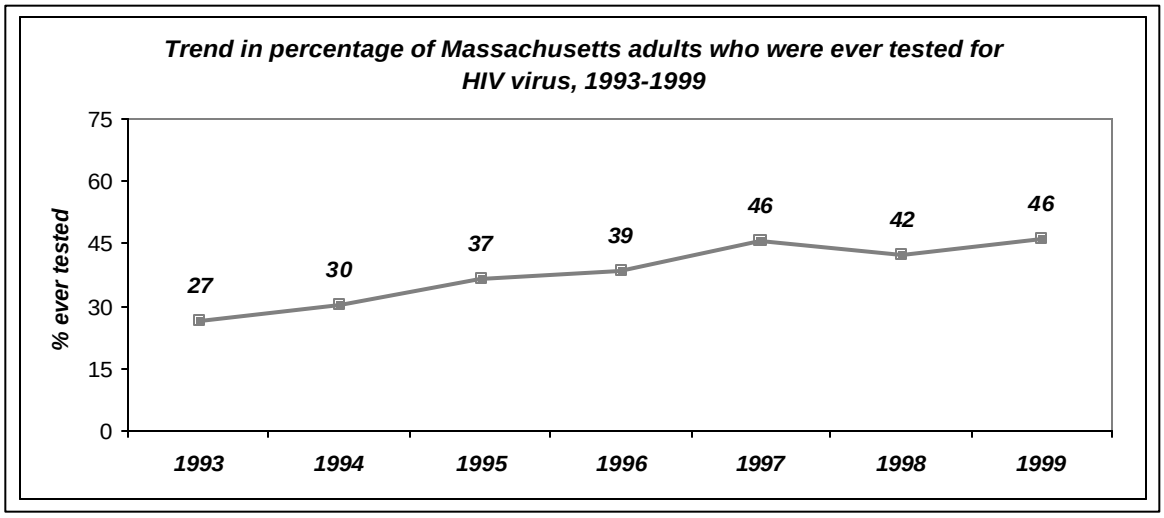


Figure 22b Source: Massachusetts BRFSS, 1993 - 1999

- **Comparison with National Data and Healthy People 2010 Objectives:**
  Compared to Massachusetts adults in 1999, four states had more adults who described their risk of HIV as high to medium.

HIV/AIDS	
	MEDIUM/HIGH RISK
Massachusetts %	8.1%
US Median %	6.7%
Range of US States	2.7 - 11.8%

*Massachusetts rank**	46th
Healthy People 2010	NA

*Based on lowest risk or healthiest behavior – 1st = best

Table 22b Source: US and MA BRFSS, 1999

SECTION 23. GAMBLING

All respondents were asked about their gambling activity in the past year. Gambling was defined as playing lottery games such as scratch tickets, numbers or Keno; bingo, video poker machines, or card games for money; horse or dog races; sports pools; or going to a casino. Those who reported gambling within the last 12 months were asked if gambling had ever created problems with their family, work or personal life.

In 1999, 46% percent of Massachusetts adults gambled in the past year. Men were more likely to have gambled than women, while adults age 75 and over, Asians, and Hispanics were less likely to have gambled. Among those who gambled, 3% felt that gambling created problems in their life. There were no strong relationships between problem gambling and age, race, income, education, or employment status.

GAMBLING AMONG MASSACHUSETTS ADULTS, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	GAMBLED IN PAST YEAR		EVER HAD A GAMBLING PROBLEM *	
	%	95% CI	%	95% CI
OVERALL	46.0	44.2 - 47.8	3.2	2.3 - 4.5
GENDER				
MALE	51.9	48.9 - 54.8	4.0	2.9 - 5.6
FEMALE	40.6	38.4 - 42.8	2.3	1.1 - 4.8
AGE GROUP				
18 – 24	46.3	39.7 - 52.8	3.5	1.6 - 7.6
25 – 34	46.1	41.8 - 50.3	6.4	3.4 - 11.7
35 – 44	45.7	42.1 - 49.3	3.5	2.1 - 6.0
45 – 54	50.9	46.8 - 54.9	1.5	0.7 - 3.5
55 – 64	53.6	48.3 - 58.8	0.8	0.2 - 3.6
65 – 74	42.5	37.5 - 47.5	3.1	1.3 - 7.6
75+	30.6	25.1 - 36.1	0.3	0.0 - 1.8
RACE/ETHNICITY				
WHITE, NON-HISPANIC	48.4	46.4 - 50.4	2.9	1.9 - 4.2
BLACK, NON-HISPANIC	48.1	38.9 - 57.2	2.7	0.7 - 10.4
HISPANIC	24.2	18.6 - 29.7	5.2	2.0 - 12.8
ASIAN	26.0	14.4 - 37.6	†	
EDUCATION				
<HIGH SCHOOL	38.2	30.9 - 45.6	2.0	0.7 - 5.5
HIGH SCHOOL	47.5	44.3 - 50.7	3.0	1.8 - 4.9
COLLEGE 1 - 3 YRS	50.0	46.1 - 53.7	3.2	1.8 - 5.6
COLLEGE 4+ YRS	44.1	41.1 - 47.1	3.7	2.0 - 6.8
HOUSEHOLD INCOME				
<$25,000	44.9	40.2 - 49.6	6.6	3.2 - 13.1
$25 - 34,999	49.9	44.3 - 55.4	4.8	2.5 - 8.9
$35 - 49,999	49.5	44.8 - 54.2	2.9	1.3 - 6.0
$50 - 74,999	52.7	48.1 - 57.3	2.2	1.0 - 4.8
$75,000+	49.6	45.4 - 53.8	2.7	1.4 - 5.3
EMPLOYMENT				
EMPLOYED	49.5	47.3 - 51.7	3.5	2.3 - 5.2
UNEMPLOYED	41.7	33.0 - 50.3	3.8	1.1 - 12.1
UNABLE TO WORK	40.4	30.1 - 50.6	2.6	0.9 - 7.7
HOMEMAKER	37.4	29.4 - 45.4	5.8	1.7 - 18.1
STUDENT	39.7	27.5 - 51.9	0.0	
RETIRED	39.2	35.3 - 43.0	2.5	1.1 - 5.5

Table 23a

Source: Massachusetts BRFSS, 1999

* among adults who gambled in the past year

† insufficient sample size

- **Trends over time:**
  data not available

- **Comparison with National Data and Healthy People 2010 Objectives:**
  data not available

SECTION 24. ELDER HEALTH

Adults age 65 and older were asked questions related to their ability to perform daily activities of living, including eating, performing personal hygiene, getting around inside and outside of the home, and handling small objects. Functional limitation was defined as having difficulty in any of these areas. Elders were also asked whether they wore a hearing aid every day, and whether they had vision in one or both eyes.

In 1999, 31% of elders reported a functional limitation in at least one activity of daily living. The percentage reporting functional limitation increased with increasing age, and decreased with increasing education and income. 10% of elders reported wearing a hearing aid every day and 8% reported being blind in one or both eyes. Both hearing aid use and vision loss increased with increasing age. Use of hearing aid decreased with increasing income. Black elders were less likely to wear a hearing aid than White elders, but were more likely to have vision loss.

HEALTH AMONG MASSACHUSETTS ADULTS AGE 65 AND OVER, 1999

(PERCENTAGES AND 95% CONFIDENCE INTERVAL LIMITS)

	FUNCTIONAL LIMITATION		USE HEARING AID		BLIND IN ONE OR BOTH EYES	
	%	95% CI	%	95% CI		
OVERALL	30.7	27.4 - 34.1	9.9	7.7 - 12.1	7.6	5.7 - 9.5
GENDER						
MALE	26.6	21.3 - 31.9	10.5	6.8 - 14.3	6.7	3.7 - 9.8
FEMALE	33.4	29.1 - 37.7	9.5	6.8 - 12.2	8.2	5.7 - 10.7
AGE GROUP						
65 – 74	25.0	20.8 - 29.1	7.0	4.5 - 9.5	5.6	3.4 - 7.7
75 – 84	36.4	30.3 - 42.5	11.8	7.6 - 16.0	8.9	5.3 - 12.5
85+	46.0	34.4 - 57.6	20.2	10.8 - 29.6	15.5	6.9 - 24.1
RACE/ETHNICITY						
WHITE, NON-HISPANIC	30.6	27.1 - 34.1	10.0	7.7 - 12.3	7.2	5.3 - 9.2
BLACK, NON-HISPANIC	35.8	19.1 - 52.5	2.4	0.0 - 5.9	19.0	0.0 - 38.2
HISPANIC	†		†		†	
ASIAN	†		†		†	
EDUCATION						
< HIGH SCHOOL	41.1	32.1 - 50.2	10.8	5.1 - 16.6	12.2	6.6 - 17.8
HIGH SCHOOL	31.8	26.3 - 37.3	10.9	7.1 - 14.7	7.9	4.6 - 11.2
COLLEGE 1 - 3 YRS	30.7	23.5 - 37.8	8.8	4.4 - 13.3	6.5	2.7 - 10.3
COLLEGE 4+ YRS	23.7	17.4 - 30.0	9.0	4.7 - 13.3	5.8	2.3 - 9.3
HOUSEHOLD INCOME						
<$25,000	36.5	30.2 - 42.8	10.1	6.0 - 14.3	9.7	5.9 - 13.6
$25 - 34,999	28.2	18.4 - 37.9	9.4	3.1 - 15.7	2.6	0.0 - 5.9
$35 - 49,999	25.1	15.0 - 35.2	7.3	1.0 - 13.6	3.7	0.0 - 8.2
$50 - 74,999	11.6	0.8 - 22.4	6.9	0.0 - 16.1	8.3	0.0 - 18.2
$75,000+	12.4	1.8 - 23.0	3.1	0.0 - 9.0	3.1	0.0 - 9.0

Table 24a

Source: Massachusetts BRFSS, 1999

† insufficient sample size

- **Trends over time:**
  data not available

- **Comparison with National Data and Healthy People 2010 Objectives:**
  data not available

BOX 24: RESEARCH BRIEFS ON ELDER HEALTH

Quality of life and living alone

In 1999, all adults were asked how many other children and adults lived in their household. Fifty-four percent of elders report living alone. Sixty-two percent of elderly women lived alone, compared to 41% of men.

The relationship between living alone and several quality of life variables was different among men and women. Men who lived alone were much more likely to report feeling sad or depressed 15 or more days during the past month compared to men living with at least one other person. In contrast, women living alone were not more likely to report feeling sad or depressed com pared to women living with others (Figure 24a). Men living alone were also less likely to be satisfied with life and less likely to get the emotional support they needed compared to men living with others. There was no difference in these quality of life measures between women living alone and women living with others (data not shown).

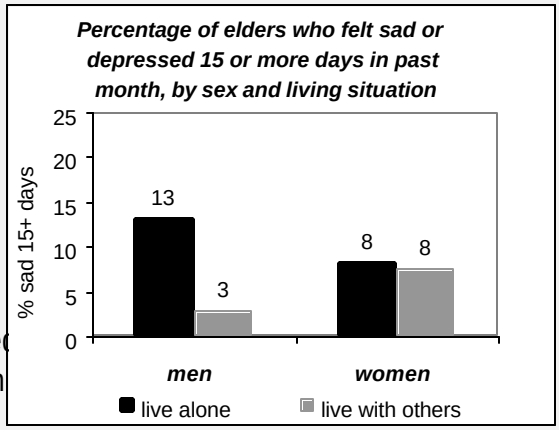


Figure 24a Source: Massachusetts BRFSS, 1999

Quality of life and sensory deficit

Overall, 12% of Massachusetts elders reported either a hearing or visual deficit (sensory deficit). Elders with sensory deficit were more likely to report feeling sad or depressed 15 or more days in the past month compared to those with no sensory deficit. As shown in Figure 24b, sensory loss affected mood differently among men and women. Women with sensory loss were more likely to report feeling sad and blue compared to women with no sensory loss, while men with sensory loss were less likely to feel sad or depressed compar to men with no sensory deficit.

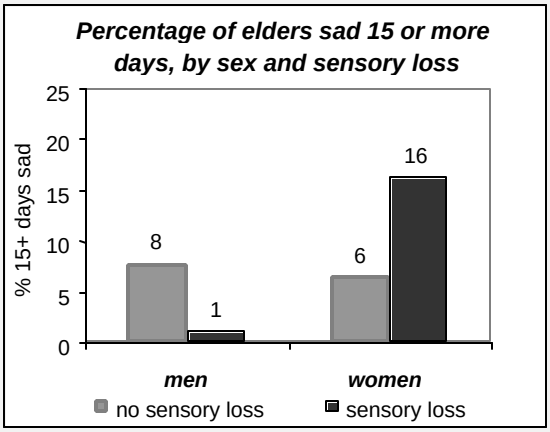


Figure 24b Source: Massachusetts BRFSS, 1999

Alcohol use in the elderly

Elderly persons may be particularly vulnerable to negative affects of alcohol consumption, due to chronic illness, medication use, and changes in alcohol metabolism that come with age. The National Institute on Alcohol Abuse and Alcoholism recommends adults over the age of 65 drink no more than 1 drink per day. Figure 24c shows the distribution of alcohol use in Massachusetts adults age 65 and older. Nine percent of elders drink more than the recommended limit of 1 drink per day.

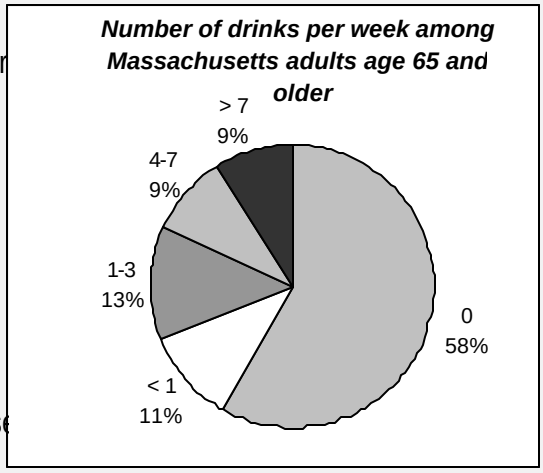


Figure 24c Source: Massachusetts BRFSS, 1999

GLOSSARY

Confidence Interval: The BRFSS surveys a random sample of the Massachusetts adult population and generalizes the results to estimate the true prevalence of disease or behaviors of the entire population. Two successive surveys of the same population may not yield the same estimate of a health behavior, simply due to the random selection process. For example, if we conduct two identical surveys of smoking prevalence at the same time, we may have two different estimates smoking prevalence, even though the true underlying proportion of smokers in the population is unchanged.

The percent estimate usually provides a good approximation of the underlying truth, although there are a range of values that may be consistent with the data. This range is called a confidence interval. A 95% confidence interval can be considered to be a range of values that has a 95% chance of including the true proportion, given that the data were not biased in any way. The confidence interval describes the precision of an observed estimate of the underlying proportion, with a wider interval indicating less certainty about this estimate. The main factor affecting the width of the confidence interval is the number of respondents.

A 95% confidence interval can be considered a range of values that has a 95% chance of including the true proportion.

Readers should note that not all values within the confidence interval are equally likely. Values close to the estimate are more likely than values near the end points of the confidence interval. For example, the estimate for the percent of adults in Massachusetts who are current smokers is 20.2%. The 95% confidence interval for this estimate is 18.9 - 21.5%. However, upon repeated surveys, half of the values would be expected to fall within the range 19.7- 20.6%.

Healthy People 2010 Objectives: *The Healthy People 2010: National Health Promotion and Disease Prevention Objectives* are a national agenda that aim to significantly improve the health of Americans in the decade preceding the year 2010. Developed through an extensive governmental, professional, and public national process, Healthy People 2010 defined two broad national goals: to increase quality and years of healthy life and to eliminate health disparities. These goals were supported by 476 specific objectives that set priorities for public health during first decade of the 2000's. The objectives were organized into 28 priority areas such as tobacco, overweight, and diabetes. For each objective, a numeric national target for the year 2010 was set. For each health status indicator in this report that has a corresponding Healthy People 2010 Objective, the year 2010 target is shown in the relevant graphs and tables.

Healthy People 2010 seeks to: increase quality and years of healthy life, to reduce health disparities

Median: The median is the middle observation for a set of observations; i.e. the value that divides the frequency distribution into halves. It is also equal to the 50th percentile. For example, the US median represents the point at which half of the states have a higher estimate than the median and half have a lower estimate.

Standardization (adjustment): Standardization is one tool used to remove the influence of an extraneous variable on the association between an exposure and outcome, that is to remove the *confounding* by that extraneous variable. For example, we may be interested in assessing whether women who experienced recent intimate partner abuse (exposure) are more likely to be currently smoking (outcome). However, we know that in our population women who experienced recent intimate partner abuse (IPA) are younger than those who have not, and younger women are also more likely to smoke. Thus, we would like to remove the confounding effect of age, and to understand the underlying association between IPA

and smoking independent of age.

In standardization, we stratify the data by the confounder, and calculate the proportion of people with the outcome within each stratified group, and we do this separately for the exposed and the unexposed group. In the above example, we would stratify the data and calculate the proportion of smokers within each level of age, for the IPA and non- IPA groups separately. Next, we would select a standard set of weights based on the frequency distribution of the confounder for that population. For example, we could calculate the frequency distribution of age for the total population. Then we apply this standard set of weights to the stratified - specific proportions for both the exposed and the unexposed group, and then compute the weighted average proportion for the exposed and unexposed groups. In essence, standardization breaks the link between the confounder and exposure, and allows us to say that if the exposed group and unexposed group had the same level of the confounder, what would the association with the outcome be. In the above example, this translates into what is the effect of IPA on smoking, if people with and without IPA had the same age distribution.

Standardization is one tool used to remove the influence of an extraneous variable on the association between and exposure and outcome, that is to eliminate confounding by an

In the above example, we standardized by age. However, standardization can be used to remove confounding by any extraneous variable such as gender, race, income, health status, etc. Standardization is one of the most intuitive approaches to removing confounding from data. Other commonly used tools include regression modeling and Mantel - Haenszel techniques.

KEY LINKS

Chronic Disease Surveillance Program: The Chronic Disease Surveillance Program is part of the Bureau of Health Statistics, Research and Evaluation at the Massachusetts Department of Public Health. Additional information about the program including other state publications can be found on our website located at http://www.state.ma.us/dph/bhsre/cdsp/brfss/brfss.htm, link to our program.

MassCHIP: Data on selected variables from the Massachusetts BRFSS are available through the Massachusetts Community Health Information Profile (MassCHIP), an Internet - accessible information service available from the Massachusetts Department of Public Health. Information about how to register as a MassCHIP user is available at: http://masschip.state.ma.us/.

National BRFSS data: There is a national BRFSS website as part of the Centers for Disease Control and Prevention, which provides information about the BRFSS, includes listings of publications and questionnaires, provides national data on selected variables, and includes links to relevant websites. The national BRFSS website is located at: www.cdc.gov/nccdphp/brfss/. A downloadable document that describes all aspects of the BRFSS and survey methodology is located at http://www.cdc.gov/nccdphp/brfss/pdf/userguide.pdf.

Healthy People 2010 website: The Healthy People Objectives has been coordinated by the U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Information on the health prevention goals, priority areas, measuring progress in the health indicators and other pertinent information can be found on the Healthy People 2010 homepage at: http://www.health.gov/healthypeople/.

ACKNOWLEDGEMENTS

This report was prepared by the staff of the Chronic Disease Surveillance Program:

Daniel Brooks, MPH, Director
Karen Clements, MPH, Research Analyst
Phyllis Brawarsky, MPH, Research Analyst
Lorelei Mucci, MPH, Research Analyst
Brian Bradbury, MPH, Research Analyst
Jason Yeaw, BS, Research Analyst

We wish to express our gratitude to the residents of Massachusetts who participated in this survey, and to ORC Macro, Inc. and the dedicated interviewers who helped make this survey possible.

For further information about this report, about the BRFSS, or the Chronic Disease Surveillance Program, please contact: Daniel Brooks, MPH. Chronic Disease Surveillance Program. Bureau of Health Statistics, Research, and Evaluation. Massachusetts Department of Public Health. 250 Washington Street, 6th floor. Boston, MA 02108 - 4619. telephone: (617) 624 - 5636. email: daniel.brooks@state.ma.us.